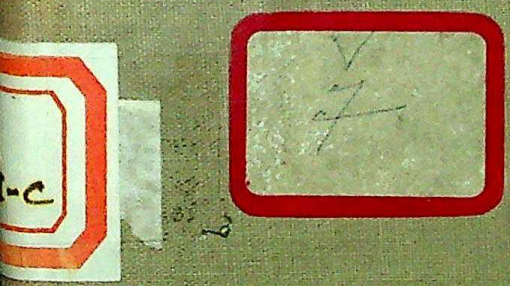
Digitized by Arya Samaj Foundation Chennai and eGangotri

SHINDE'S DICTIONARY OF

CINE ART AND FILM CRAFT



CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

गुरुकुल कांगड़ी विश्वविद्यालय
कृपया पुस्तक के ऊपर कोई निशान आदि
न लगायें।

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

पुस्तकालय

गुरुकुल कांगड़ी विश्वविद्यालय, हरिद्वार

वर्ग संख्या ..... आगत संख्या.....

पुस्तक विवरण की तिथि नीचे अंकित है। इस तिथि सहित ३० वें दिन यह पुस्तक पुस्तकालय में वापस आ जानी चाहिए। अन्यथा ५० पैसे प्रति दिन के हिसाब से विलम्ब दण्ड लगेगा।

Stock Verification-2024

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

SHINDE'S DICTIONARY OF

CINE ART AND FILM CRAFT

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

For Students, Educational Institutions & People in Profession.

04456

SHINDE'S DICTIONARY OF

CINE ART AND FILM CRAFT

Compiled and Edited
By

Capt. M. K. SHINDE

Formerly film director and commentator,
C. K. S. Film Production Group, DAVP;
Ex Marathi commentary writer & speaker,
Films Division, Government of India;
and author of many Marathi works.

पुस्तकालय
गुरुकुल कांगड़ी विश्वविद्यालय

पं० विद्याधर विद्यालंकार
स्मृति संग्रह

R 710,SHI-C
04456

POPULAR PRAKASHAN, BOMBAY

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

First published in December 1962
Pous 1884

R
710
SHI-C

© Capt. M. K. Shinde

V
9

Printed by V. B. Khale at Jai Gujerat Printing Press, Gamdevi, Bombay 7, and Published by G. R. Bhatkal, Popular Prakashan, 35-C, Tardeo Road, Bombay 34 WB.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

To

The Memories of my younger brother

Late ANANT KRISHNAJI SHINDE

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

ACKNOWLEDGMENTS

Grateful acknowledgments are due to the many authors, editors and publishers whose publications have been helpful to me in compiling and editing this book. Some of the books and periodicals have been listed on Page 174 and bibliography is also given. To list them all would encumber this volume unreasonably. If any required acknowledgments have been remained unmentioned, it is by accident and forgiveness is desired.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

THANKS !

I would like to tender my hearty thanks to—

Mr. Jayant Salgaonkar, without whose help this book would have remained in the manuscript form as it was lying for the last few years;

Bhatkal brothers—Mr. Sadanand and Mr. Ramdas—who took initiative, interest and responsibility to publish this book;

Mr. K. A. Abbas, an author, film writer, director and producer, for being kind enough to oblige me by writing a preface to this work, and to Mr. Vasant Sathe for helping me to get the same;

The Senior Editor of "Span" for sending on my request the photographs of (a) Thomas Edison, and (b) the first studio that was built by him, and allowing me to reproduce them in this book;

Mr. Abasaheb Acharekar, and my children—Pramila, Vijaya and Kishorsing—who gave me helping hand in arranging the words alphabetically;

Miss Sumitra Tumkur, Mr. J. R. Udeshi, Mr. R. G. Sardesai, Prof. Dr. Parab, Mr. Trimbakrao Parchure, who encouraged me when they learned of this pioneer work;

Many of my friends and technicians with whom I had discussed the subjects from time to time.

—EDITOR.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

PREFACE

Everybody is interested in films. Film songs fill the air, film gossip overflows in fan magazines, even political dailies and weeklies devote space to reviews and news of films.

But unfortunately this wide and general popular interest in filmic affairs seldom goes beyond gossip and star-craze. There is a lamentable lack of knowledge of the art and technique of the cinema which alone can provide a basis for an intelligent and serious appreciation of films as an art form.

Captain M. K. Shinde, therefore, deserves to be congratulated on his monumental 'Dictionary of Cine Art and Film Craft'. It is obvious that much painstaking study and research has gone into the compiling and editing of this volume. There is hardly any aspect of the cinema (as an art, as a technique and as business) which Captain Shinde has not dealt with in his Dictionary.

It is, indeed, a gold mine of very useful information, valuable for the general film fan who wants to know a little more about his favourite art form, and invaluable for the people who are already engaged in any branch of film production as writers, artistes or technicians. For those who wish to enter the cinema field in any capacity it can serve as a most useful text-book.

December 1962.

K. A. ABBAS.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

EDITOR'S NOTE . . .

The word "dictionary" is purposely used for this book. In modern usage, it means to be a book of information on every branch of a subject, alphabetically arranged.

There are many works on film technique, art and philosophy. But there is none available so far, that will give a reader all the necessary information about and explanation of a term or topic, concisely. This work is a ready-reference handbook, for a busy technician, an earnest student and an inquisitive layman. It is comprehensive in content, yet easy to understand. Wherever possible, suitable synonyms and cross references are given separately, to facilitate the clarity of meaning.

Although no originality is claimed by the compiler, the idea of presenting the subject in this form is novel. It is evolved through a continuous process of self-teaching and by keeping in touch with the latest developments in the field. It is an outcome of the hobby of collecting and compiling the relevant information on the subject in a systematic way. It is the result of less than 5 per cent inspiration and more than 95 per cent perspiration. This is meant to be a craft-book and not intended to be a piece of literature.

Long years of practical experience in several departments of film-making, form the parental source of this book, although quite a number of books and periodicals etc., were referred. The bibliography given in the end, will give a preview of the extensive research undertaken.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Due to oversight a few proof-reading errors have remained; particularly on page 94 in line No. 20 "Yokmanya" should read "Lokmanya", and on page 96 in line No. 21 "Pralhad" should read "Prabhat". I may be pardoned for such lapses.

It is human to have limitations and shortcomings. For a compiler-editor, it is more so. This work is to be read and judged in this light. However, all constructive suggestions are welcome, as they will greatly help in making the next edition more useful to the readers.

The publication of this "dictionary" coinciding with the "Golden Jubilee Year" of the Indian film industry is sure to prove rewarding to all concerned with it.

It is only a mite.

M. K. SHINDE
Capt. (Hon.)

31, Khotachi Wadi,
Bombay 4. (India)
December, 1962.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

GUIDE TO THIS BOOK

[Readers are advised to go through this entire book at least once to get the general idea of Cine Art and Film Craft. Those who are interested in any one or more of the following subjects, will find the necessary information on the pages indicated by figures.]

1. Acting, Actor: 1, 2, 3, 9, 53, 105.
2. Aerial photography: 4.
3. Anamorphic System: 5, 6.
4. Animation: 7, 8, 85, 145.
5. Army Film Unit: 9.
6. Art Department, Art Director: 9, 38, 127, 134, 135.
7. Background Music: 10 .
8. Back Projection: 11.
9. Basic Plots: 12.
10. Bipack Color: 13.
11. Camera, Cameraman: 4, 5, 8, 10, 11, 13, 15, 16, 17, 37, 40, 43, 46, 49, 50, 52, 53, 54, 55, 65, 83, 84, 85, 88, 89, 90, 100, 102, 103, 104, 109, 110, 114, 116, 122, 123, 124, 128, 130, 135, 136, 137, 143, 145, 153, 160, 164, 165, 167, 169.
12. Cartoon: 7, 8, 18, 28.
13. Censors: 19.
14. Children's Films, Children's Film Society: 20, 21.
15. Cinecolor: 21, 22.
16. Cinemascope: 22, 23, 24.
17. Cinematography—Substandard: 28, 29, 33, 34.
18. Cinerama: 29, 30, 31.
19. Colour Films: 3, 4, 13, 34, 42, 56, 57, 58, 61, 96, 104.
20. Coloured Movie: 34, 96.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

21. Colour Television: 34, 35, 36, 123, 152, 153.

22. Commentary, Commentator: 35, 37, 63, 118.

23. Copyright Act: 38, 39, 40.

24. Dance Director: 21.

25. Developing, Printing, Projecting: 1, 4, 5, 8, 9, 10, 11, 13, 14, 37, 38, 40, 42, 45, 49, 69, 70, 83, 104, 109, 118, 121, 125, 126, 127, 129, 147, 157.

26. Dialogue: 9, 14, 17, 45, 46.

27. Direction, Director: 38, 47, 49, 70, 83.

28. Documentary, Training Films etc.: 17, 27, 31, 48, 49, 52, 100, 101, 105, 130.

29. Dubbing: 50, 109, 112, 113, 126.

29A. Dufaycolor: 3, 4.

30. Editing, Editor: 1, 11, 13, 14, 20, 32, 33, 37, 38, 40, 41, 42, 50, 51, 52, 55, 70, 83, 100, 103, 104, 105, 109, 110, 112, 114, 115, 116, 118, 121, 122, 123, 125, 129, 130, 131, 136, 143, 147, 159, 163.

31. Educational, Career Films: 17, 31, 52, 100, 101, 102, 105, 130.

32. F.A.B.: 54.

33. Films 35 mm., 16 mm.: 1, 32, 33, 50, 55, 56, 57, 58, 59, 60, 61, 64, 65, 66, 67, 68, 69, 74, 83, 87, 88, 104, 129, 131, 145, 146, 169, 171.

34. Film (Picture) Making: 65, 66, 113, 114, 115, 116, 127.

35. Films Division: 64.

36. Films (Sound): 60, 70, 71, 83, 87, 137.

37. Film Conversion Table: 62, 63.

38. Film Storage: 71, 72, 73, 145.

39. Film strip: 73, 74.

40. Filters: 75, 76, 77, 78, 79, 80, 81, 82, 85, 86, 171.

41. Gevacolor Process: 86.

42. History of Cinematography: 25, 26, 27, 28, 35, 90.

43. History of Indian Motion Picture: 84, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.

44. History of Talkie: 27, 96, 148, 149.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

45. I.F.I.: 91.

46. Kodachrome Process: 104.

47. Light, Lighting: 1, 9, 10, 11, 12, 14, 18, 41, 42, 47, 50, 83, 103, 106, 107, 108, 109, 110.

48. Lenses: 5, 24, 25, 32, 37, 85, 90, 105, 106, 109, 150, 173.

49. Location, Location-Manager: 11, 53, 109.

50. MagnaColor: 110.

51. Meters: 34, 42, 53, 62, 83, 169.

52. Music, Musicians, Music Director: 10, 17, 115, 116, 117, 130.

53. Music, Background: 10.

54. Natural Vision: 118.

55. News Reel: 27, 94, 100, 118.

56. Objectionable Films: 118, 119.

57. Objectionable subjects: 119, 120.

58. Omnisphere System: 121.

59. Optical Process (Kodacolor): 121.

60. Paravision: 123.

61. Peripheral: 123.

62. Physical Properties of Film: 66, 67, 68.

63. Photorama: 124, 125.

64. Plastorama: 85.

65. Playback: 125.

66. Producer: 126, 127.

67. Production Manager: 127.

68. Recording Equipment: 111, 129, 138.

69. Relative Sizes of Films: 70.

70. RotoColor: 131.

71. Scenario, Script, Script-writing, Script-writer: 1, 14, 47, 49, 65, 70, 83, 114, 116, 127, 132, 133, 134, 135, 143, 147, 157, 164.

72. Shots: 7, 15, 16, 17, 20, 31, 32, 40, 50, 70, 84, 88, 89, 109, 110, 114, 115, 116, 118, 121, 123, 127, 130, 135, 136, 145, 164, 165, 173.

73. Sound, Sound Recording, Recordist: 4, 6, 7, 10, 11, 13, 14, 17,

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

18, 19, 31, 42, 43, 44, 45, 46, 47, 48, 49, 50, 54, 55, 70, 71, 83, 85, 88, 89, 90, 91, 103, 106, 109, 110, 111, 112, 113, 114, 115, 120, 121, 122, 123, 127, 128, 129, 135, 136, 137, 138, 139, 140, 141, 142, 143, 164, 166, 169, 171.

74. Special Effects, Tricks: 9, 29, 32, 50, 55, 83, 84, 85, 113, 114, 129, 130, 136, 137, 143, 165, 171.

75. Story, Story-writing, Story-telling Etc.: 9, 11, 12, 17, 19, 20, 37, 50, 65, 70, 83, 85, 103, 104, 115, 125, 127, 143, 145, 146, 147, 158, 164, 165.

76. Strip, Slide Films: 31, 73, 74, 136.

77. Talking Machine: 103, 104.

78. Technicolor: 115, 147, 149, 150.

79. Telecinema: 150.

80. Television, Television Programme: 11, 12, 13, 15, 18, 32, 115, 123, 144, 145, 150, 151, 152, 155, 156, 157, 165, 166, 167, 168.

81. Television Cameraman: 153, 154.

82. Thomas Color: 158.

83. Three "D": 118, 123, 159, 160.

84. Titles: 40, 113, 130, 143, 147, 160.

85. T.M.T.: 160.

86. Todd-AO: 161, 162, 163.

87. Varioscope: 166.

88. Vista Vision: 163.

89. Wide Screens, Wide Screen Technique: 31, 40, 41, 110, 121, 123, 124, 131, 132, 147, 148, 169, 170, 171.

90. Wipe: 171, 172, 174.

91. Reference books, Bibliography: 174, 179, 180.

92. Index: 175, 176.

93. How good is a Picture: 177.

Fig. No. 1: 36

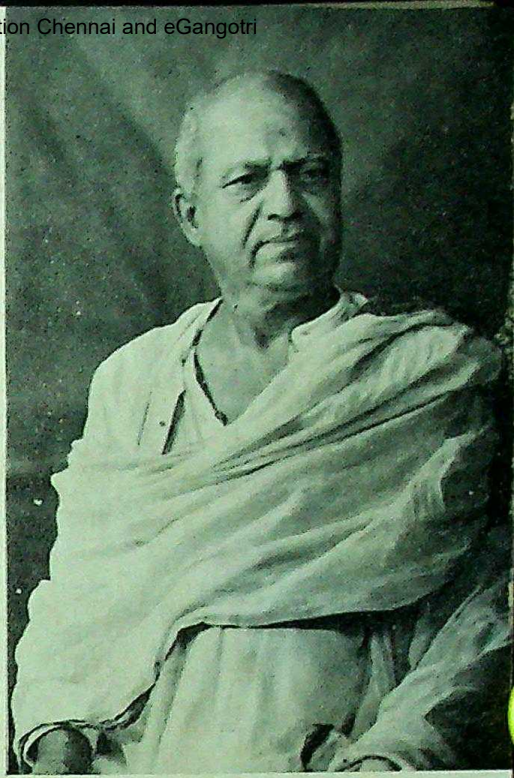
Fig. No. 2: 151

Fig. No. 3: 172

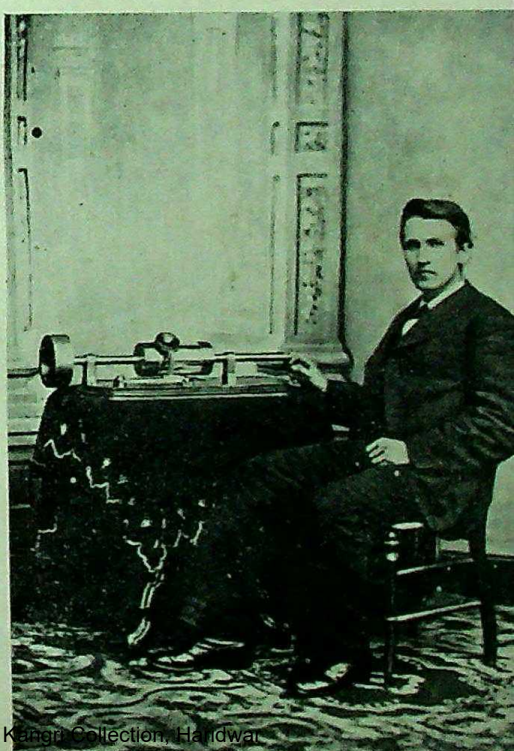
Fig. No. 4: 178.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri



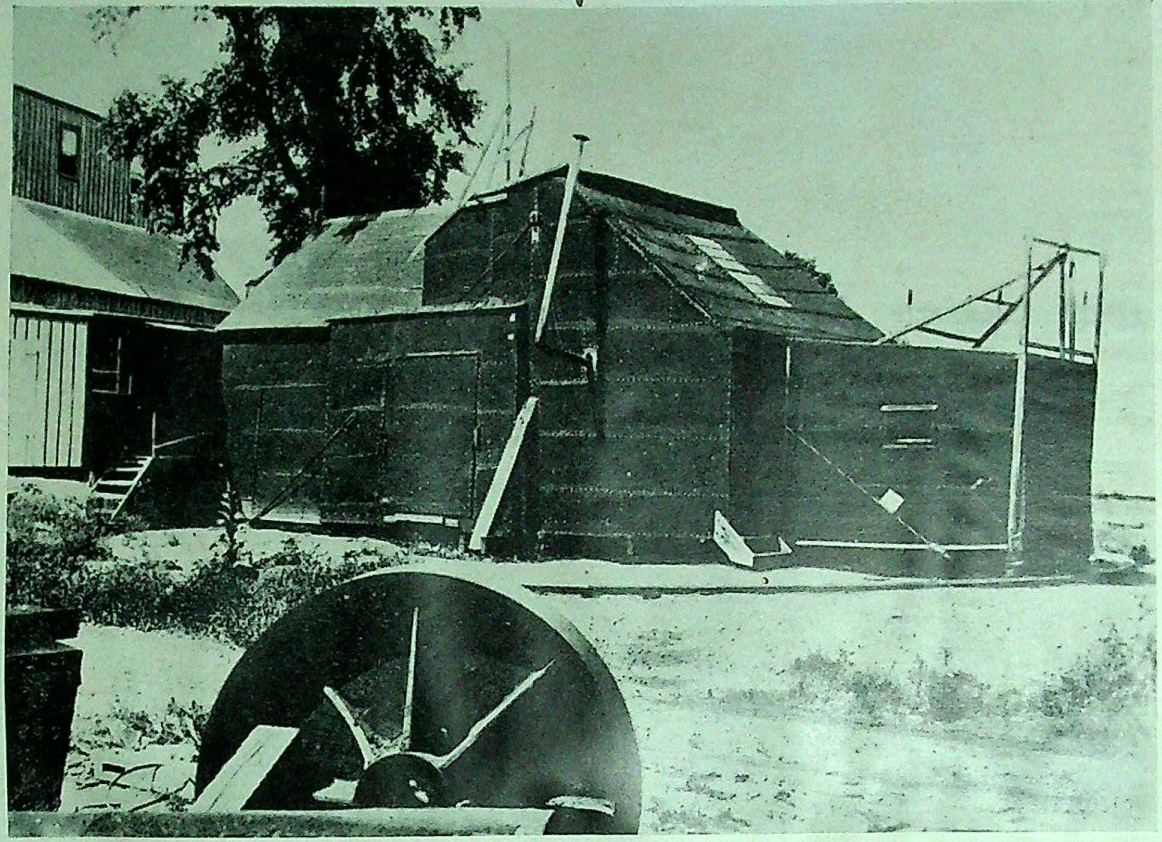
D. G. alias
DADASAHEB PHALKE
The father of Indian film industry. (Page—92, 97)



THOMAS EDISON
with the first phonograph, which he invented in 1877.
(Page—26, 50, 104, 132, 148)

(Courtesy—"SPAN")

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar



The first motion picture studio that was built by Thomas Edison in 1892. (Page—27)

(Courtesy—"SPAN")

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Digitized by Arya Samaj Foundation Chennai and eGangotri

A

A-roll: The scene from which you are going to dissolve or fade with an opaque trailor at its end. Now used principally to make colour correct opticals by a special double print process. Also called "matte roll".

Abrasions: Scratches or defects in the film emulsion caused by mishandling.

Accents for the Script-Writer: The most useful accents for the script-writer are the camera angles. See "Camera Angles".

Ace: Name for a 5 kw. incandescent lamp. Also called a senior.

Acetate: A film base which is not explosively inflammable. Also called safety film. Only base now used in film production.

Acme Optical Printer: The Acme Optical Printer is designed to meet the demand for speed, dependability, accuracy, ease of operation and maintenance, and is a very versatile machine with a wide variety of features.

Among the varieties of its uses are, simultaneous double printing, dissolves, wipe-off, travelling mattes, stop-framing, reverse action special effects, enlargements and zoom or dolly shots to any portion of the frame and any practical combination of frame printing are made automatically and even the most difficult and tedious of operations are simply and quickly done.

Act, copyright: See Copyright Act.

Acting: It is difficult to say at which point film acting became a technique on its own, and it is a hesitant, dotted line that is drawn even today between the technique of acting on the stage and that of acting before a film camera. There are obvious divisions, of course. It may generally be said that, the actress (or actor) uses her body and her voice to project the character she is playing on the stage, and her eyes and her voice for the screen portrayal.

It is better to come to screen acting with stage acting experience behind you; it is essential when you act before the camera to reject all that you remember about stage acting; conversely, it is good to remember all that you have learned in a film studio when going back to the stage.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

In the theatre the actress is an entity. The performance she gives, good or bad, is her own. In a film studio she is a part of a vast and complicated mechanism. While she gives her performance, the camera, in the creative hands of another person, is giving its performance too, and that is not all. The final performance she gives she plays no part in it at all. It is made in the cutting rooms.

The secret of screen acting is the secret of the imaginative use of realism of the quality of detail which accompanies the magnification of the screen.

It requires imagination and great self-discipline of body and face to enact subjective feeling in terms of minute objective changes of expression and attitude.

Acting: To be a good actor or actress you must improve your personality. Become more attractive to others and develop your physical expressiveness through pantomime and also develop your vocal expressiveness. Learn to develop a rich, full speaking voice and improve your pronunciations.. Develop a voice that is interesting and can be controlled.

To improve your own personality first stand before a full length mirror and study your image. Then check yourself on the following points :

1) Head held high and over the middle of shoulder.
2) Chin parallel to floor.
3) Shoulders even and pulled back a litle.
4) Arms resting easily at your sides with the palms turned toward your thighs.
5) Feet pointing straight ahead about four inches apart (women) or six inches apart (men).

Remember: practice makes perfection. Personal magnetism, a charm that comes from within, is most important in acting. This is the quality that distinguishes a star. The five qualities that are listed here as the characteristics of great actors and actresses are the qualities listed by the producers, directors, and studio professionals. They are 1) friendliness, 2) kindness, 3) interest in other people, 4) vitality, 5) self-confidence.

Friendliness: When genuine, is the most attracting force you have. It is an out going radiance that almost always draws people toward you.

Kindness: is just courtesy and consideration for others.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Interest in other people: is essential if you are interested in acting. Since you will be portraying characters from life, it is necessary that you observe and study people.

Vitality: is the force and energy that makes people know you are alive. It is an essential quality of an interesting and exciting personality and an indispensable quality of the actor. It is most certainly a physical enthusiasm.

Self confidence: is based on successful experiences. Self confidence is not saying you can act, it is knowing you can. To prepare for acting roles is to develop your ability to convey emotions and ideas with your body. Try to do this by pantomime. What is pantomime? It is the language of movement, or dumbshow, and it is universal.

Observe yourself and other people in emotional situations. Try to create anger, fear, embarrassment, sorrow, jealousy, happiness, despair, horror, defiance, disgust, etc.

To develop your vocal expressiveness, first learn to master freedom of movement. If this is done, vocal expressiveness comes more easily and naturally. Make practice to speak clearly so that you must be understood. Here you must develop additional technique to interpret meaning fully. Two words will be of infinite value to you: *What and Why.* Ask yourself "What am I trying to say?" and "Why am I saying these words?"

There are four factors which give flexibility and colour to your voice: 1) pitch, 2) quality, 3) volume, and 4) tempo (rate). Always mind these four points. Facial expression, body movements and voice, all these three things must go hand-in-hand in acting.

Action: Action does not necessarily mean only physical attacks, train crashes, etc. Action is also movement of the story, keeping the sequences flowing, never allowing characters to remain static for long period.

Action: Last word of command given by a director to start performance of the actors.

Actuality: Film record of an actual event, made without use of actors and without reconstructing or reinterfering with the action in any way.

Additive Method: The chief representative of this class is Dufaycolor. The cinematograph process differs from the "still" pro-

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

cess, in that the film exposed in the camera is developed as a negative, and is thereafter printed on to Dufaycolor positive film. Both the negative and the positive materials have reseau patterns, and the relationships of these patterns in the printer and the method of illumination during printing are designed to eliminate any possibility of interference patterns of "moire" in the final picture. The process gives great accuracy of colour, but there is considerable loss of transparency as compared with monochrome or subtractive colour prints, owing to the oscuring of a large part of the film area by the controlling photographic densities.

Ad lip: Lines or speeches not written into the script but improvised by a performer as scene is played.

Additive printing: In additive printing there is no subtraction of any colour from the over all white light, as it is in the subtractive printing. (See subtractive printing). This means, in practice, that there must be three light sources, and provision for each of the three beams to be controlled in their intensities, and then all three allowed to add up on the operature.

Aeolight: See Sound Recording-Variable Density System.

Aerial Photography: The history of photography from air goes back to 1845 when attempts were made to take photographs from non-navigable balloons. Nadar of Paris produced successful photographs from a balloon in 1858, but there was no real progress until fully controlled aircraft emerged from the experimental stage. With the war of 1914 came the first attempt to make a science of map-reading from the air. In 1915 the forerunner of the modern Air Force camera appeared.

Aerial photographs are divided into two main classes, termed respectively "Vertical" and "Oblique", according to whether they are taken vertically downwards or at an angle.

The vertical, or plan, phograph, although of inestimable value for service or topographical purposes is, from the fact of its perpendicular view-point.

The oblique photograph, then, may be taken as the more generally interesting to the ordinary person, and the most pleasing results are obtained when the camera is depressed between 30 degree and 60 degree from the horizontal.

Aim of exposure : The final aim of every cinematographic exposure is, as far as the photographic technique is concerned, to

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

project on to the screen a picture which has approximately the same range of brightness values (contrast) as the subject itself. Frequently, however, the brightness range of the image is required to the longer or shorter than that of the original either in order to obtain special effects or to meet the taste of the audience.

Althescope : A device of Signor Ponti, of Venice, in which a large single lens is used in looking at a transparency or an ordinary positive.

Anaglyph, Anaglyphoscope : A means of producing stereoscopic effects due to MM. Louis Ducos du Hauron and D'Almeida. One picture of the stereoscopic pair is printed in red and the other in a greenish-blue at any rate, the tints must be nearly complementary. As both impressions are superimposed on the same white paper, and the two unlike pictures cannot exactly coincide, a somewhat confused double image results. The principle of the anaglyph is applicable to stereoscopic projection with the optical lantern. According to one method the two pictures of the stereographic transparency are projected upon the same screen by means of two lanterns, but in the optical path of each lantern there is interposed a coloured glass, the two colours being complementary to each other; the double and confused image on the screen being viewed by an anaglyphoscope, having glasses of corresponding colour, the stereoscopic effect is obtained.

Anamorphic lens: A special lens which squeezes a wide picture onto a narrow strip of film. A similar lens on the projector "unsqueezes" the picture on the screen to a wide width.

Anamorphic Systems : Anamorphic systems are optically of three types: 1) Cylindrical, such as the Bausch and Lomb, Zeiss, Kiptar, Cinepanoramic; 2) Prismatic-Varamorph; or 3) Mirror-Delrama.

Of these three types, only the prismatic type is capable of varying the anamorphic ratio. The Gaumont-Kalee Varamorph covers a range of anomorphic ratios from 1.3 to 1 up to 2 to 1.

When a picture is projected at considerable rake upon a curved screen, curvature of horizontals and divergence of verticals will ordinarily be apparent, especially from the stalls. Provision is made in the Delrama for correcting this fault, merely by tilting the mirrors; theoretically such adjustment is also possible with some cylindrical systems.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

In all cases, it is necessary when mounting the anamorphic system to make separate adjustments for the spherical and anamorphic systems. In the case of cylindrical systems, the backing lens is first set to infinity, the pair of lenses is correctly focussed sharpened by adjustment of the anomorphic system.

Prismatic and mirror systems have to be mounted on a special bracket, which permits of the optic swinging clear of the beam for projection of normal films. This bracket is generally attached to the projector, but occasionally to the projection port.

Cylindrical system may be mounted in similar fashion, or on the tube of the backing lens. In fitting the Cinepanoramic, Pathe Equipment employs a sleave specially machined to adapt to the backing lens (if necessary with a bush to suit smaller diameter lenses) so ensuring correct alignment.

When an anamorphic system is mounted without a supporting bracket, care must be taken to ensure that the lens mount of the projector is sufficiently sturdy to carry the additional weight and overhang. Some older types of projectors are not suitable for this method of mounting; all modern machines are quite suitable, except possibly in the usual case of a backing lens of long focus being needed, in which case there is considerable overhang.

Anamorphoscope : M. Linde's photo-anamorphoscope was a device by which a revolving picture was photographed on a revolving plate, the directions and speeds being different, but in order to secure definition only a narrow radial strip was exposed at one time. The result in no way suggested the original, and appeared a confusion of whirl-like markings, but when viewed in an apparatus corresponding to that employed in its production (anamorphoscope) the original was reconstituted to the eye.

Anamorphote Lens : A lens which contains a cylindrical element, and therefore distorts like a cylindrical mirror.

Angle and Dimensions Slit (Recording): The ideal recording light beam would be infinitely sharp at the film, but this is incompatible with adequate exposure. The obvious harm of too wide a recording light beam is that it will fail to register the waves of very high frequencies. It can also result in serious wave from distortions, especially at the higher frequencies. In the RCA recording system the slit image is 0.00025 in.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

wide at the film. Variable-density recording systems have used a somewhat wider image. It is difficult to state in simple terms the width of the image used in light-vale recording, for this varies in accordance with the ground-noise reduction bias. Without any bias the valve is usually set to give an image 0.0005 in. wide.

It is obvious that the recording and reproducing light beams should both be set perpendicular to the direction of motion of the film, for unless their angles are identical, distortion will result.

Angle Shot: A scene which continues or duplicates the action from a preceding scene. Used to break up the monotony of a lengthy shot.

Angular Aperture: Angular Aperture is a relation borne by the working diameter of a lens to its focal length; that is to say, the angle which the aperture of the lens subtends at a distance equal to the equivalent focal length.

Animatic: Series of slides on film. Often used in TV with live announcer because of cheapness.

Animation: A method of producing moving pictures using drawing of characters and backgrounds in motion. Cartoons are examples of this.

Animation: Animation applies to single frame photography of flat-work such as drawings and photographs. The term "stop-motion" applies to single frame photography of objects rather than drawings, such as product boxes, puppets, etc. "Time lapse" is single frame work compressing time to a degree dependant upon the interval between frames. Construction of a building is very good example of this technique. These are special terms and they are not to be interchanged. Animation can be divided into two classes of work: (1) Cartoon and (2) Technical. (See also field).

Animation-Cartoon: Although techniques vary considerably, substantially confines itself to having the original drawings made on paper in pencil, over a drawing board illuminated from underneath. These paper drawings are carefully traced to sheets of clear cellulose acetate, similarly punched and registered on pegs. Tracing is done in ink or water colour. When the traced outlines are completed, the cellulose acetate sheets are turned over, and the reverse side is painted in with opaque water colour manufactured for the purpose. These drawings

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

are then placed over suitable background and photographed in correct sequence. According to the action, it may be necessary to have as many as four cells over one background at a time. The cameraman according to the exposure sheet, supplied to him, exposes as many frames as indicated therein.

Animation-technical: Like Cartoon Animation, much of it is handled on punched cells. A great deal of technical animation may be done on cells that are not registered, without any cells at all, with cutouts, movable flat models, photographs, scratch-off and disclosure methods. The drawing styles that are photographic, cross sections, graphs, maps, flow charts, arrows, effects and any combinations of the above, are among the technical animation methods. There are several systems like Acme, Oxberry, Signal corps etc.

Ansco Colour Film-Printing Equipment: The Scenetester takes the place of a cinex machine in manufacturing Ansco Colour prints. Its primary function is to make it possible for the timer to select for a given colour original or dupe the proper colour correction filters and printing density. The Scenetester must match the printer or printers. It is teamed with for absolute light output, colour balance, exposure time and light changes. A Bell & Howell Model D printer modified for colour printing and a Scenetester which was made for darkroom operation. The Scenetester prints 16 frames simultaneously through 16 different colour correction filters and was designed to work with modified Bell & Howell Model D printers.

Answer print: First composite print, not necessarily timed for best photographic values. Used to check continuity and synchronization.

Anthraphotoscope: A kind of photographic peep-show, backgrounds and figures being marginally mounted on glass discs, by suitably turning which various combination scenes could be produced.

Aperture: Opening in camera, recorder, projector or reproducer through which sound or picture image is recorded or reproduced.

Aperture: Opening, variable in size, through which light reaches the sensitive film in the camera.

Aperture Angular: See Angular Aperture.

Apple box: A low portable platform usually 12 to 18 inches in height. Used to raise actors or props to right height.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Arc: High intensity light produced by carbons, sometimes called Kliegls after the manufacturer.

Army film unit: During the second world war, a film department was started on behalf of the Defence Ministry of the Government of India, under the name of "General Staff Training Film Centre" in Bombay: the department after functioning for five years and ten months, was closed on 31st March 1947. At the time of closing it down its name was Combined Kinematograph Services Film Production Group — C. K. S. for short — and it produced many training and propaganda talkie films in 14 Indian languages.

Arrows and knives: Arrows be shot into people, knives thrown into walls etc. are done by placing the knife in the object first and flicking it out on the end of an invisible wire, and running the film in reverse.

Art Department: The department where the copy of a scenario is sent for doing work pertaining to art.

Art Director: Who prepares sketches and models for the settings, properties and puts in hand finished drawings and full-size details of each particular object. He gets the framework done by the carpenters, and then finished settings are prepared by painters, plasterers etc. Vast majority of work falls upon the Art Director. In most of the European countries the Art Director is known as "Architect" or "Decorateur".

Art of the Film: The art of the film is the art of story-telling in pictures.

Art of Timing: The story teller's art of timing lies in the introduction of new movement, new characters and new situation at the right moment.

Ash can: Term to denote a large arc hung overhead.

Aside: Dialogue spoken directly to the audience, not presumed to be heard by other characters.

Aspect ratio: The praportion of hight to width of any screen image. TV is 3 high to 4 wide—normal movies 1 high to 1.33 wide. Wide screen pictures vary but are much wider than this proportion.

Assembling shots: See Shots assembling.

Atmosphere player: An Extra.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Attachment, Soft-Focus: A diffusion disc or gauze mask slipped over the camera lens in order to soften the outline of the image.

Audio: The sound portion of any screen production.

Audition: (1) A hearing, as to try a person's voice.
(2) A testing of a performer's ability and voice qualities.

Automatic Volume Control: The principle of automatic volume control has been of great help in sound recording. The audio-frequency circuit is divided into 2 channels and the voltage from one of the channels is rectified, and the rectified voltage used to reduce the gain in a variable-gain amplifier stage in the other channel, whose output is to be recorded. This has the effect of reducing the disparity between the stronger and the weaker sounds and improves intelligibility, particularly if the sound is to be reproduced under adverse conditions.

B

B-roll: The scene which is to be dissolved to, or to be faded in. (See A-roll.)

Baby spot: Small type of spotlight for high lighting.

Background: Anything used, as the name impiles, as subordinate to or behind the principal figure or figures or objects in a photograph.

Background: Planes beyond the principal subject, especially in portrait and still-life. The background should be sufficiently unobtrusive not to compete in interest with the main subject, to which it should be subordinated.

Backgroumd Music: (1) Music used for heightening the effect of the particular scene or situation. Background music is used for silent as well as talkie sequences. (See Music for Film).
(2) Mood music which helps to set the key for audience's reception of the scene being played.

Background plate: Positive photo background, either static or dynamic, to be projected from rear of a translucent screen in front of which action will be played in foreground. Used for process shots.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Background sound: Sound effects used to stimulate normal sounds behind the action of any players. Crowd noises and street noises in the effects tracks are used in studio scenes of street action.

Back lighting: Light directed toward the subject in general direction of camera lens, to give highlights.

Backlot: That part of the studio property where exteriors are erected and shot.

Back Projection: This process is used for reducing costs of production particularly on outdoor shots and the latest extension of the process for the reduction of expenditure on sets should also be particularly helpful. The equipment and the screens for the purpose would have to be imported from abroad though some results could be achieved by adapting theatre equipment for the purpose.

Back timing: Figuring out running time, working forward from the last scene to the first. Used most often in live TV programmes.

Baffle: Anything used to detour unwanted light or sound from entering camera or mike.

Balance: The blending of voice, sound, and music to achieve the proper volume relationships.

Balanc of a Story: The shape of a story as a whole, which reveals itself when we have finished it.

Balanced Film: A film with the completed story which leaves the audience satisfied that the right amount of weight has been given to each element in the story.

Balop: Diminutive for Baloption projector which throws positive images on screen by reflectors. Used in live TV commercials.

Bara door: Hinged panels placed in front of studio lamps to direct light where it is needed, or to shield camera from it.

Barney: A heavy cloth blimp used to silence camera operating noise from mike.

Barrel: Receptacle in editing room where discarded film is thrown.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Base light: A TV term fill light which provides the overall level in which the scene will be shot.

Basic Light: See Lighting (Indoor).

Basic stories or plots: It is stated that there are only 36 basic plots and that all stories are merely variations of these. They are as follows:—

1. Supplication.
2. Deliverance.
3. Crime followed by vengeance.
4. Vengeance, kindred upon kindred.
5. Pursuit.
6. Disaster.
7. Falling prey to cruelty or misfortune.
8. Revolt.
9. Daring enterprise.
10. Abduction.
11. The Enigma.
12. Obtaining.
13. Enmity of kinsman.
14. Rivalry of kinsman.
15. Murderous adultery.
16. Madness.
17. Fatal imprudence.
18. Involuntary crimes of love.
19. Slaying of a kinsman unrecognised.
20. Sacrificing self for an ideal.
21. Self sacrifice for kindred.
22. All sacrificed for a passion.
23. Necessity of sacrificing loved ones.
24. Rivalry of superior and inferior.
25. Seduction.
26. Obstacles to love.
27. Discovery of the dishonour of a loved one.
28. Crimes of love.
29. An enemy loved.
30. Ambition.
31. Mistaken jealousy.
32. Erroneous judgement.
33. Remorse.
34. Recovery of a lost one.
35. Loss of loved ones.
36. Conflict with God.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Bath: Either the liquid in which photographic material is treated, or the vessel that contains it.

Bath, fixings: See Fixing Bath.

Beam: The pick up angle of the microphone within which that instrument functions at its greatest efficiency.

Bipack Color: Bipack is the most economical process of natural colour cinematography available today. While it is a two-colour system and subject to limitations in its colour rendition, it can with proper care produce excellent results, and its simplicity and economy are such as to commend its use for all purposes where colour is needed. Circumstances do not warrant the higher cost of three-colour methods.

Bipack may be photographed in any standard camera, such as the Bell and Howell, Mitchell, Wall, Duplex, etc. Two films are used, passing through the photographing aperture face-to-face. The front film is orthochromatic, to record the blue-green portion of the picture. Its surface carries a red dye equivalent in colour-transmission to a Wratten 23-A filter. The rear film is panchromatic, and being photographed through the red coating of the front film, records only the red-orange components of the picture.

Special magazines or adapters must be provided to accommodate the two films.

Care should be taken to avoid photographing objects of purple lavender or pink colouring, as the process cannot reproduce these colours.

Blasting: To suddenly put more volume into the microphone or other transmitting equipment than it can take. Distortion invariably results.

Blimp: Sound proof housing for camera mechanism which keeps camera operating sound off mike.

Blocking: Used in TV to denote planning of actor's performance or business in advance of rehearsal, providing a key to its timing.

Bloop: A method of eliminating noise caused by overlapping splicing of film track. Makes optical track opaque. Sound tape is butt-spliced for same purpose.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Blooping Ink: Same as Movietone Black. (See Movietone Black).

Blow-up print: Any positive enlarged from original size of the negative — 16 mm to 35 mm, for instance.

Boom: Mechanical contrivance to which mike is attached which enables it to pick up voice, move with the players and yet keep out of the picture.

Boom: A beam projecting from the upright pole. It holds the microphone hanging in desired position.

Boom-man: One who handles the boom at the time of recording.

Booster light: Electrical lamps used to intensify daylight and to eliminate shadows.

Breakdown: An analysis of the film script in terms of locations, properties etc., from which it is possible to estimate production costs and determine the most practical order in which the scenes should be taken.

Bridge: Action, music and/or dialogue inserted to link two sequences.

Bridge Passage: Film phrase or paragraph linking episodes in a story.

Budgeting: See Film making.

Business: The term used to denote the performer's actions or movements while speaking or reacting to lines.

C

Cable: The connecting links between lamps and electrical sources, between TV cameras and recorder or transmitting between the mikes and the sound recorder. Co-axial is the mutiple — signal used in TV.

Caldwell Halo Screen: Notable among the number of light surround screen systems, is the Caldwell Halo Screen. This screen operates on the principle of rear and side lighting, and has the projection screen hanging in the mid air, all supports being invisible to the audience. To the rear approximately two feet, hangs a dimly lighted cyclorama (a circular panoroma painted on the inside of a cylindrical surface appearing in natural perspective) and this distance allows the eyes of the patrons some-

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

thing to measure by, and results in creating a feeling of depth. The presence of this light surround which is all sides of the screen top and bottom, causes the iris in the human eye to narrow down a bit. It is claimed by the manufacturer that this results in a much sharper picture on the screen than could otherwise be possible by mechanical means.

Calibrations: The marks on lens barrels denoting the size of iris stop being used for photography.

Callsheet: A written summons to attend a rendezous for filming issued to players and technicians.

Cameo: Action photographed against flat black background, with only the actor and props lighted. It eliminates cost of set.

Camera: The old term, camera obscura, is now shortened into camera, excepting in a few cases where an old-style tent-camera is used as an exhibition at a sea-side or holiday resort. Every form of camera now used is actually a dark chamber or box into which the image of external objects may be projected by means of a lens or other image-forming device.

The first photographic camera of Nicephore Niepce appears to have been constructed about the year 1816, and in a letter written during this year he describes it as "a sort of artificial eye consisting of a square box fitted with an adjustable tube containing a lens".

Camera: See Moving Picture Camera.

Camera-Angle: Angle of view which the camera lens takes on a scene.

Camera Chain: All the electric equipment required to deliver a picture from TV stage to the control room, for transmission or tape recording.

Camera Identification Marks: A small identifying mark of special design is cut into the side of the camera aperture gate of most standard 16mm. and 8 mm. cameras in such a manner that shows up along the edge of each frame when an exposure is made and the film is developed, making it possible to tell at a glance in what camera the film has been shot through.

These marks appear only when the film has been exposed through the camera and processed, either to a negative or reversal positive.

They do not appear on the duplicate prints, nor do they show

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

upon the screen when the film is projected, as the projector aperture is slightly smaller than the camera aperture, thus masking off that part of the film from the screen.

They should be viewed from the celluloid side with the picture erect.

The Mitchell 16 has no identification marks.

The Acme 16 has no identification marks.

The Reeves Reflex 16 has two round dots on the right side of the frame.

The Maurer Professional 16 has the letter "M" on one side of the frame.

Cameraman: Cine photographer.

Cameraman, Television: See Television Cameraman.

Camera Notes: Clapper board bearing shot No., sequence, take-No. etc. is photographed in the beginning and at the end of the shot. This is a great help to the editor to reassemble the shots in their serial order.

Camera opticals: Photographic effects which are made in the camera instead of by optical printer — not always too successfully.

Camera Positions: There are seven camera positions which are divided into three groups: (1) Establishing shots, (2) Explanatory shorts ,and (3) Climatic shots:

(1) *Establishing shots*: Full shots and long shots.
   (a) Full shot: The full shot is a shot of entire scene or natural setting. It is a general impression shot.
   (b) Long shot: The long shot means anything from a half to a full setting, and it is generally taken from 25 feet to 100 feet.

Establishing shots should always be short.

(2) *Explanatory shots*: (a) Medium Long shot, (b) Medium shot and (c) Medium Close shot.
   (a) Medium Long shot: This shot shows the full figure of a player or the full figures of several players.
   (b) Medium shot: This shot shows the players from the knees upwards and may include of four players.
   (c) Medium Close Shot: This shot shows the players from the waistline upwards.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

(3) *Climatic Shots*: They are the (a) Close-up and (b) Big close-up.

(a) Close-up: This shot shows an actor from the top of his head to the V of his tie.

(b) *Big close up*: This shot shows the face only or even the portion of the face at times.

These shots may be used when the player has something of great importance to say, to do or to think.

Shots: Generally film shots can be divided into four groups:

(a) *Angle shot*: Angle shot is the placing of the camera in a particular position. This is done to give special importance to the character of setting or emotion of a player.

(b) *Tracking shot*: Moving of the camera towards or away from the player and moving with or after the player.

(c) *Tilting shot*: Placing a camera on a crane which makes it possible to swing the camera in an arc in any direction and speed.

(d) *Pan Shot*: It is taken from the stationary camera but in a circular movement.

Camera Rehearsal: Corresponds to a dress rehearsal in stage production.

Camera, Video Recording: See Video Recording Camera.

Cans: Headphone or earphones.

Canned Music: Music that is transcribed or recorded.

Caption: (1) The caption is a legitimate part of story telling by film. It establishes a scene, explains a passage of time, adds a line of dialogue, provides an explanation for complicated movement, or supplies vital facts.

(2) Explanation, comment or dialogue, written, photographed and spliced into the film.

Career Film: The film which shows what certain jobs involve to enable young people to select a career. These films teach them how to become skilled in the profession or trade selected: building, engineering, tailoring, civil aviation etc. These films are called training films.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Cartoon: See under Cinematography, history of. Also see Animation; Animation cartoon; and Animation Technical.

Cartoon Film Unit: In August, 1944, the Government of India had set up a Cartoon Film Unit with a view to carry on war propaganda through a livelier medium than the factual documentary or straight newsreel could permit. An expert in the producion of cartoon films was brought from the United Kingdom, but difficulty was said to have been experienced in getting the required key animators, equipment, and celluloid stocks from abroad.

The Cartoon Film Unit was able to produce only one cartoon strip by May 1946, when it was dissolved.

In May 1956, a new cartoon department has been started, in Films Division, by the Ministry of Information and Broadcasting, Govt. of India. It had made few cartoon-films and they are not bad.

Carolus Cell: See Sound Recording-Variable Density.

Catch light: Used to pin-point light on a part of the performer.

Cathode-Ray Tube: Cathode-ray tube is a special type of vacuum tube wherein electrons emitted from a cathode are concentrated into a beam and caused to play upon a special screen which glows at the point of impact. As the electron beam is moved about, it traces its path.

Essentially a cathode-ray tube consists of (1) an electron-beam source—called the cathode, (2) provision for focussing and projecting the beam on the screen, (3) provision for deflecting the beam and (4) fluorescent screen.

Cause of Distortion in Area System (Recording): Distortion in the area system is caused principally by spreading of the image beyond the theoretical boundary, owing to the finite width of the recording slit, and to scattering of the light within the emulsion. (It is possible with low exposures, and high contrast, for the black area to be less than the exposed area, but with the high exposures employed in area recording, the black area from image spread is always steals something from the clear). The distortion resulting from image spread is most serious with high frequencies, and is practically negligible at low frequencies. By proper printing exposure, the image spread in the print can be made to largely cancel the effect of that in the negative and development of variable area tracks.

Cause of Distortion in Density System: (Recording): The princi-

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

pal cause of distortion in the density system is lack of linear relationship between print transmission and negative exposure. This affects all frequencies in the audio spectrum, the distortion increasing with the amplitude. The objective of much of the sensitometric studios applied to density recording is to provide as large a range of substantially linear characteristic as possible. At best a density track cannot modulae quite as much light as an area track without serious distortion. To partly offset this disadvantage, the variable-density system overloads more gradually than the variable-area. This results in a less objectionable effect from overload, and overloading is permitted more freely than in the area system.

Celluloid: A compact transparent material, the chief constituent of which is pyrixyline or dimiro-cellulose; camphor being the usual medium (or quasi solvent) for agglutination.

Censors: Since the days of the Indian Cinematograph Act of 1918 a system of provincial censorship of films had been in force. *Bombay*: The Bombay board of film censors was first constituted in 1920. There were six members, three of whom were non-officials representing the Hindu, Mohammedan, and Parsee communities. The commissioner of police was the ex-official, President of the Board. There were two inspectors under the Board. *Punjab*: The Punjab Board of film censors was first constituted in 1927, and there were twelve members. *Bengal*: The Board was first constituted in 1920. *Madras*: The Board was first constituted in June 1920, and there were 19 members.

Central Censor Board: is established in 1951, with its headquarters in Bombay and regional offices at Calcutta and Madras. The system of classifying films into two groups and giving them "U" certificate and "A" certificate has also been introduced.

Characteristics of Sound: See Sound, characteristics of.

Characterization: Characterization is not always dependent on what a man says, much value may lie in what he does and wears.

Character Role: A term used in casting. It is a dramatic role requiring chracterization.

Characters: Develop your characters so that they display marked characteristics and become more than paper figures. Introduce traits that suggest reality. Stories can be made from in-

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

teresting characters. Establish your characters in short outline, and limit the numbers. Create characters that have visual as well as mental value. Do not allow two or three leading characters to remain too long off the screen, unless there is a definite plot reason.

Cheat shot: Action photographed with camera in tight on performers and showing minimum of background. Cuts set costs.

Chemical fade: A type of fade achieved with chemicals rather than with an optical printer. (See Farmer's Sotution.)

Children's Films: Miss Mary Field, one of the authorities on children's films has given seven main principles for children's films.

(1) A good film is nothing but a good story told in pictures. An action should be developed more through pictures than through dialogues.

(2) The story should reach its own conclusion. There should not be any suspense; because children are worried about what would happen to the characters.

(3) Children like to foresee exactly what is going to happen and then have the satisfaction of knowing it has been guessed correctly.

(4) Children expect the acting to be done by children of their own age. Roles played by adults should be less important than those entrusted to the children. The girls should participate in the film on the same footing as boys.

(5) Children demand that bad should be punished and good should be rewarded.

(6) Character like villain should have a defect making him ridiculous, so that the children can feel superior to him.

(7) There should be some situation in the story of the film that will show the children a good example to follow. But the story should not be developed with a view to giving a moral lesson. In a story for children's film, child characters should not be placed in a dangerous or terrifying situations.

Few More Points:

(1) Adventure films are good for children. They provide an action, movement, open air, triumph of good over evil, the chase, physical skill etc.

(2) Films of fantasy also are good provided they are clear and dramatically logical.

(3) Comic films are good. Also children like travel films.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

(4) "Why—How—What" films are very useful.

(5) Children of six to nine do not understand the close-up. They are frightened by close-ups of animals.

(6) Dialogues and/or commentary should be less and pictures should be more; i.e., as far as possible, story should be explained by means of pictures—by visual actions.

(7) Dubbing will always annoy the children; but well synchronized films are liked by them.

(8) Children's films should be produced mainly for two age groups: (1) 7 to 12 years, and (2) 12 to 18 years.

Children's films, length of: The Government of India has decided that the length of the children's film should not be more than 8000 ft.

Children's films producing countries: England, France, Denmark, Czechoslovakia (much has been done by this country since 1945), U.S.S.R., Norway, Holland, Sweeden, Australia, Italy, U.S.A., India, etc.

Children's Film Society: (India): This is how the Children's Film Society came into existence: (1) The Cultural Film Society of Delhi organised, in December 1952, a festival of specially produced Children's Films from various countries; when Dr. B. V. Keskar promised that, if the Society succeeded in creating an atmosphere in which there would be a public demand for such films, the Government would then take steps to have the children's Films produced. (2) In October 1953, the Film Federation of India passed a resolution supporting the Children's Film Movement. (3) In December 1953, another festival was arranged in Delhi. This was yet a great success. Dr. Radhakrishnan while inaugurating it, stressed a need of the special films for the children. (4) Third Film Festival was organised, in December 1954, in New Delhi and at the time of concluding the show, Dr. Keskar declared the intention of the Government of India, of forming a body called "Children's Film Society." (5) Lastly, The Children's Film Society was registered under the Registration of Societies Act, in May 1955, in Delhi.

Choreographer: Director who creats dance or mass movements, and supervises their execution.

Cinecolor, Two colour: For two colour action pictures, Cinecolor advises the use of Bi-pack method of photography, wherein two colour-value negatives are used in a standard ca-

विद्याधर स्मृति संग्रह

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

mera such as Bell & Howell or Mitchell. The two negatives are thread in the camera with their emulsion surfaces in contact. Since the images are thus photographed through the celluloid side of the front negative, the actual point of focus is approximately .006 inch rearward from normal black and white photography and, therefore, for eye focus the focal plane of the focussing glass must likewise be moved rearward .006 inch and for lens focus the lens barrels should be re-calibrated to accommodate the change in focus.

A film magazine, must be used that will accommodate two rolls of negative instead of one.

Since the camera gate must accommodate two negatives, the gate itself must be adjusted to allow the two films to pass through without undue pressure, but it is important that the emulsion surfaces of the two negatives are in perfect contact at the time of exposure.

Cinemascope: (1) New photographic and sound system introduced by 20th Century Fox. Employs distortion and rectification principle to permit filming in colour and projection on screen 2½ times larger than ordinary size. Starting with "The Robe", the first picture produced in 1953. Rights acquired from Prof. Henri Chretien, noted French inventor, and perfected at the studios by company technicians.

This system requires but one 35 mm. camera for filming and one machine for projection on screen. No distortion from any seat in theatre. No extra manpower required in booth. Heart of the system is a lens which makes possible compression on to 35 mm. film of wide angle scenes. The distortion created by the lens on the camera is eliminated when projected through a companion lens on projection machine. Only extra equipment required for filming is special lens attached to camera. In projection, compensating lens is attached to orthodox projector. Some rewiring of sound systems may be necessary to create stereophonic sound effect. Required also is screen, especially developed by company, which can be any length desired to fit any theatre. Screen in studio test was 64 feet wide, 25 feet high, and curves to depth of five feet.

(2) Cinemascope, otherwise known as the "poor man's Cinerama," is one of the highest gambles by a single company in motion picture industry, since the development of sound film. The history of CinemaScope goes back too little, but the principle of anamorphic lens has been known for nearly two decades.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Cinemascope

The development of the lens springs from the work of Prof. Henri Chretien, a French Physicist, whose design of a lens system covered a far wider angle of vision than the conventional lens, and at the same time distorted the image laterally into the standard film frame. This has distinct advantages over systems proposing the use of a wide gauge of film involving vast capital expenditure, on the modification of cameras, film stocks, and projection equipment. By 1937, Prof. Chretien had developed the anamorphoscope and demonstrated a film on this process, at the Paris exhibition the same year, but tried in vain to sell his lens to the Movie Moguls of America, the same year. In September 1951, Prof. Chretien, had made and patented improvements on his anamorphoscope which he designated as the hypergonar process, in a paper read to the Congress Technique International at Turin. Shortly after the publication of the paper, Spyros Skouras, President of the 20th Century Fox became interested in the system, after seeing the success of cinemas and sent Earl Sponable, 20th Century Fox Research Director, to Paris to obtain the rights for the company. Sponable returned with camera and projector lenses, and started experimental work under the direction of the head of the studio camera department. The success of the experiments led to the complete stoppage of the conventional films. Originally, an aspect ratio of 2.66 to 1, a screen width just over two and half times the width was selected but that was modified to 2.55 to 1 at a later date, to accommodate the four stereophonic sound tarcks on the picture film. Unlike Cinerama, CinemaScope requires only one camera for filming and one projector for screening.

In CinemaScope, instead of moving the camera into the actor to get closeup, the artists' movements are so staged that they walk into the close-up. Because of CineramaScope's immense screen, it also achieves what poineering D. W. Griffiths strove for—the delienation of cause and effect simultaneously. In one big scene, SinemaScope camera shows both.

As far as film production goes, it reduces the number of sets, and cuts, and shooting time, and in the instance of the "Robe" it took 52 days to shoot the entire picture. In general it reduces the shooting time for an average picture. In general it reduces the complexity of film making with its complement of angle shots, longs, mediums, and close-ups, and involved cutting and editing.

The artists have to face two or three times more light, as huge areas are lighted up. Even the extras are now seen in Cinema-

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Scope, as part of the scene, some times importantly, and it is felt that it has boosted their morale, and enhanced their performance.

CinemaScope creates more problems for the cinematographer. Because three microphones are used instead of one, the cameraman has three times as many microphone shadows to kill during lighting and at the same time, has to light up huge sets. The soundman has to worry about three microphones instead of one, and four sound-tracks. The Movie-goer will miss his favourite star's close-ups.

Even though the same standard 35 mm. film is used for CinemaScope, the sprocket hole that makes the movies move has undergone a change. Pushing around for room for four sound tracks, Sponable has found it by shrinking the lateral or width dimension of the sprocket hole. The reduction is from the standard 110 mils to 78 mils, about 30% or 1/3 smaller. Consequently, the sprockets of cameras, projectors, developing machines, printers, Moviolas, measuring devices, all had to undergo a similar change.

CinemaScope Lens: A photographer, when he wishes to include a larger field of view, uses a short focal length lens, but with these lenses, the height and the width is increased to the same extent and he is left facing with a large expanse of sky or foreground.... The solution to such a thing would be a lens, whose focal length, would be, for example, half of the focal length in the horizontal direction as in vertical direction, or vice versa, and this is exactly what the CinemaScope lens does. The CinemaScope lens, when mounted in front of the camera, enables a field of two and one half times as wide as normal to be compressed on a standard 35 mm. frame, while the vertical dimensions remains unchanged. This distortion is corrected by a similar curved optical device, which is placed in front of the projection lens and spreads out the light beams horizontally so that objects are restored to their original shape.

In short, the effect of the CinemaScope lens is similar to that of the distorted mirrors, when our own reflection is shortened or lengthened according to the direction of the curvature of the mirror.

Cinemascope Lenses: For improvement in the techniques Cinemascope, 20th Century-Fox instituted with Bausch and Lomb a broad development programme for the production of

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

improved anamorphic camera lenses. These new lenses, now perfected, have very many important attributes:

(a) Very markedly improved resolving power,

(b) Better depth of field,

(c) Better flatness of field — that is, better relative definition at the edges of the field,

(d) Improved correction of optical aberrations, particularly lateral distortion,

(e) A very much improved mechanical mounting which makes the objectives lens and the anamorphic components simultaneously adjustable from a single control,

(f) A very extended assortment of focal lengths, (or field angles) making for complete flexibility of choice on the part of the cameraman and director.

Cinematography: Cinematography is the science of so-called "Moving Pictures". Photography is not essential to cinematography but is by far the most convenient method of applying its principles.

Cinematography, History of: Cinematography is an illusion which is made possible by the phenomenon known as "persistence of vision", a phenomenon which was familiar to the ancient Greeks. It means briefly that the retina of the eye retains for a short period any impression it receives after the stimulus has been withdrawn. A more modern application of the principle occurred in 1825, when Sir John Herschel demonstrated to his friend Charles Babbage that it was possible, by spinning a shilling at a certain speed, to see both sides of the coin at one time. Dr. Fitton, a friend of Mr. Babbage, on being told of the experiment, produced a few days later a round diac of card suspended between two pieces of silk, and having on one side a painting of a bird and on the other that of an empty cage. The rapidly rotated diac produced the illusion of a bird inside a cage. At a much later date this invention appeared again as the "Thaumatrope" of Dr. Paris.

In 1833 W. G. Horner patented the "Wheel of Life," or Zoetrope. A vertical cylinder was pierced with a series of evenly spaced vertical shots. The inside of the cylinder was lined with a long strip of paper bearing a similar number of pictures of a subject in motion. Observation through the slots while the cylinder was rapidly revolved gave the illusion of movement. The earliest pictures were hand drawn.

In 1872 Edward James Muybridge, a native of Kingston-on-

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Thames, made serial photographs of a trotting horse at Sacramento race-track, and later on at the private race-track at Palo Alto of Leland Stanford, Governor of California, who financed the later experiments. Muybridge used 24 cameras in a row, loaded with wet collodion plates, the electromagnetically controlled shutters being released by 24 threads stretched across the track, and broken by the horse as it ran. He produced similar studies of other animals and of human beings, and later produced a modification of the old Zoetrope, which he called the **Zoopraziscope**, for projecting the glass plates on a screen. This instrument possessed the first form of the shutter which is now commonly used for cutting off the light between successive pictures. In 1878 he published the results of his experiments.

In 1881 he lectured in the laboratory of Dr. E. J. Marey of France, who was conducting parallel experiments, and who produced an instrument which took 12 rapidly successive images of a moving object on a circular sensitive plate. Taken from a single viewpoint this represented an advance on the technique of Muybridge.

In 1882, Muybridge, after touring the U.S.A., gave a demonstration of his methods at the Royal Institution.

In 1888 he approached Thomas A. Edison with a view to linking the zoopraziscope with the Edison phonograph, but the latter was not at that time sufficiently developed.

The year 1888 marked the introduction of long hands of celluloid coated with fast photographic emulsions, at the result of the combined work of George Eastman and the Rev. Hannibal Goodwin. This greatly stimulated research in motion picture work, which was actively conducted by Dr. Marrey, W. Friese Greene and M. Evans who were using paper film for this purpose in England, and in 1899, they applied for a patent for a machine for taking and projecting moving pictures by means of a ribbon of successive photographs.

Outstanding names of pioneers during this period were Birt Acres, W. Friese Greene and Donisthrope in England, Edison in America, M. Demeny and Messrs. Lumiere in France, and Max S. Kladanowsky in Germany.

The earliest machines were designed to be used mainly as coin-operated peep-shows, but by 1895, that is to say within seven years of the introduction of celluloid for photographic purposes, the bases of cinematography as we know it today had

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

been well established. Since that time there have been enormous developments and improvements in technique, and cinematography has taken its place as a necessary part of modern everyday existence.

On 20th December 1895, movie as public entertainment, was born. In a cellar of the Grand Cafe in Paris, at the admission charge of one Franc, the public were allowed to see a programme of ten films, each film being about fifty feet in length.

The first film studio was established by Edison at Fort Lee, New Jersey.

News Reel: The news reel was born, round about in 1896. Lumiere Brothers had sent their agent M. Promio travelling through Europe. He had taken films of the interesting events in the countries he visited: in Spain, Portugal, Germany and England, where he filmed the funeral of Queen Victoria in 1901. Pathe Weekly, the first weekly news reel appeared in 1910.

The first "story" picture: The first picture which had a complete story was "The Great Train Robbery" produced in 1903. It was 800 feet in length, based on action and finished with a close up.

Five years before this, in 1898, "The Passion Play" was produced by some other producer, but was not a success.

Film Tricks: The credit of the discovery of most of the simple film tricks we know today, slow motion and quick motion amongst them, goes to M. Melies, who made "Cindrella", "Red Riding Hood" and "A Trip to the Moon" etc.

The Birth of a Nation, a film directed by Griffith, marked the beginning of a new era. This film had its sensational premiere in New York, in March, 1915.

Documentary: "Nannok of the North" was the first documentary produced by Robert O'Flaherty in 1922, but the word "Documentary" was coined by John Grierson. He used the word (in 1929) 'documentary' for his picture "Driffters".

Talkie: Warner Brothers started to make sound on disc films and their programme of all sound film shorts was given at their New York theatre on August 6th, 1926. Then in the followinfi year, they made "The Jazz Singer" and future of the talking film was assured.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Cartoon: The cartoon film is nearly as old as the story film. It was a way back in 1908 that Emile Cohl made his hundred feet "Phantasmagoria", and this crude though it was, can be considered as being the first real film cartoon. This film needed two thousand separate drawings; today a cartoon such as Disney's "Reluctant Dragon" need more than 20,000 separate drawings. In 1937, Disney presented his first full length cartoon "Snow White and the Seven Dwarfs."

Cinematography, Sub-Standard: Before 1912 attempts had been made to interest the amateur in moving pictures on film 35 mm., 17 mm. (half standard) and 28 mm. wide. The latter size introduced by Pathescope and Victor, was for projection only. The 17½ mm. film took the form of ordinary standard film slit down the centre. Glass plates carrying hundreds of small pictures in spiral formation were also used for projection purposes.

In 1923 Kodak introduced to 16 mm. Kodak Reversal film, together with the Cine-"Kodak" camera, and the Kodakscope projector, while almost simultaneously there appeared the 16 mm. Bell and Howell "Filmo" camera and the Victor camera. These cameras take daylight loading spools of film and are driven by a clockwork motor. The English "Ensign" camera is the same in principle. Other 16 mm. cameras include Zeiss-Ikon and Agfa. The Siemens camera uses a cassette or charger, which is a light-tight box containing space for both unexposed and exposed film, the winding mechanism of the take-up side engaging with the mechanism of the camera and the film dropping into place in the gate of the instrument when the cassette is loaded into the camera. In 1934 Kodak went one step further with the Magazine Cine "Kodak" in which the front part of the magazine constitutes the back of the film gate when the camera is loaded.

Loading is therefore practically instantaneous. The magazine itself contains a train of gears which form an important part of the film transit mechanism.

9.5 mm. reversal film was born about the same time into as 16 mm. being introduced by Messrs. Pathe of France (now Pathescope Ltd), together with the Pathe Baby camera and Home Cine Projector. The majority of 9.5 mm. cameras are loaded by the charger or cassette method, but there are one or two advanced instruments which use the daylight loading spool.

8 mm. film was not introduced until 1932, when Kodak put out the Cine-"Kodak 8" camera, projector and film. Since then a

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

large number of instruments and several brands of film have been introduced, and 8 mm. bids fair to become the most popular of all amateur sizes. 8 mm. film can be obtained in two forms, single width or double width. In the latter case the film is run through the camera and exposed down one side only, then turned round and exposed down the second side. After processing it is split longitudinally and joined end for end.

Cinerama : The new age of wide screens may be properly dated from the opening of Cinerama in New York on September 30, 1952.

Cinerama carries the concept of an increased screen area almost to the limits of normal vision. In this system picture presentation is accomplished through use of a huge curved screen which provides a full vision of 146 degrees horizontally, and 55 degrees vertically.

In 1938 the late Fred Waller, the inventor of Cinerama, was experimenting with eleven 16 mm. cameras, to achieve the object of peripheral vision. For his tests, he had to test 931 lenses to pick up eleven matched lenses for his 16 mm. cameras, on which he had conducted all his experiments for the sake of economy. Soon after the clouds of war started hovering round, and the whole project of Fred Waller was shelved. Henry Martyn Baker, a graduate of the Naval Academy, happened to see one of the early demonstrations, and requested Waller to apply his ideas of 'peripheral vision' to the consaruction of an apparatus to train men in gunnery. Waller jumped at the idea, and thus came into being the "Waller Flexible Gunnery Trainer", the fore-runner of Cinerama—the device which is credited with saving the lives of 300,000 people. It had five projectors running in sync with stereophonic sound, and a screen consisting of sheets of plywood bent to shape and the inner surfaces of the sheets were covered with an aluminium powder in a gum solution, which by controlling the thickness of the solution, made it possible to control the angle of light reflected.

After the war was over, Fred Waller was able to interest new investors, and thus came into being the present Cinerama Corporation.

Cinerama photography shoots 3 films in synchronism. The camera has three lenses of 27 mm. focal length, which are set 48 degrees apart, each shooting one third of the screen. In projection, these three films are run in three projectors which run

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

in synchronism with a fourth soundhead which carries the seven sound tracks. The middle projector throws the picture towards the centre of the screen, while the one on the right covers the left third of the curved screen and that in the left booth the right third, while the picture is kept sharp over the entire curved screen area by means of lenses having a good depth of focus. The three projectors throwing the images on the screen have oscillating apertures that are driven from a-came with saw-toothed edges moving at a high rate of speed to fade out the edge of one image while the adjoining one is fading in thus obscuring the demarcation.

As there is no sound track on the picture film, the picture frames are widened to occupy its area also while the height is increased to occupy six sprocket holes. Thus the Cinerama picture frame has twice the area of the standard four sprocket picture and this gives it the advantage of reduced magnification.

The cinerama film runs at 26 frames per second instead of the standard 24 because flicker is observed by the human eye in the peripheral area of the retina which cinerama covers. This results in a film speed of 146.3 feet per minute as against the standard 90 feet per minute, because of the larger area of the cinerama film 1.119 by 1.00 inches as against the standard film area of 0.631 by 0.868 inches.

Cinerama's sound tracks reproduce with great fidelity frequencies from 30 to 15,000 cycles per second as the film runs at 146.3 feet per minute. There are five stage speakers which operate from the five tracks and its associate amplifiers. The sixth track fed manually by the man at the mixer who controls the cinerama show, to which every side of the auditorium speakers the scene demands. The seventh track is not used regularly as it is a composite track and its use generally creates sound wave interferences and thus mars the sound performance.

The cinerama screen is a queer contrivance to control the reflected light, due to its curved screen. To prevent reflections, the screen is made up of 1100 vertical strips of plastic tape, mounted in a louver formation, so that they bounce inward reflected light, through the intervening spaces instead of across the screen.

The panoramic effect of the huge curved screen with the stereophonic sound, from all parts of the theatre, is to give the audience a feeling that the action is taking place all around them.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

The Cinerama system does not present problems of light and Film Grain, because it uses three widths of 35 mm. film, thereby limiting the degree of grain magnification, and employs three Arc Lamps to light the Screen.

Let us examine Cinerama's drawbacks. First of all, it is very expensive because of special cameras required to photograph, and three special projectors to run the film. The majority of the theatres are not big enough, to accommodate all this equipment, and to add all this, increased personnel is required to operate.

Upto now Cinerama has confined itself to a collection of shorts and travelogues. Due to the fast moving and spectacular scenes shown so far on the Cinerama screen, the difficulty of matching the detail and lighting of the three picture panels and distortions found in the extreme end curvature of the screen, have been acceptable, but with slow moving, intimate screen story telling, serious objections may arise. In short, Cinerama is too huge and costly for the average theatre.

Cinemiracle: See under "Wide Screen Process".

Cinex strip: A strip of positive film with 20 frames, each exposed for a different length of time in printer. Used in a densitometer by the timer to determine best light level for each scene.

Circarama: See under "Wide Screen Process".

Clapper boy : The first stage to recording is the job of a clapper boy. With two pieces of hinged wood he marks, by sound and photography, the start and finish of a shot.

Clap stick: A device which is seen on closing scene state, making a sharp noise on sound track. Guides editor in synchronizing sound with picture.

Class B Push-pull Track : See Push-pull Track Class B.

Classroom Films: Films on the subject made for use in schools.

Classroom Films, Further Education : Films made for use in training colleges and institutes, and similar establishments for adult-education. They differ from the classroom film only in that they call for more sophisticated treatment.

Clean it up : To make necessary changes during rehearsals that will get the scene in good shape.

Close up : A shot in which camera is, or appears to be, very

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

close to the subject. If the subject is human figure, a close-up would contain head and shoulders only. (see camera positions).

Closed-Circuit Television : See Television, closed circuit.

Cloud making: A simple process that would produce clouds in a scene, employes appropriate large scale photographic transperencies of real cloud formations, which are set before the camera lens so the clouds are photographed simultaneously with the rest of the scene operating on the principle that the barren sky operates as a printing light in conjuction with the transparency.

The transparency reduces the light passing to the film in proportion to the density gradation of the transparency. On the finished positive the whitest "Cloud" is of the brightness of the unfiltered sky. The transparency is set before the lens of the camera, and is adjusted so that the horizon of the transparency is in proper relation to the horizon of actual scenes. A wide angle lens is employed and the smallest lens-stop possible is used so that the transparency and the actual scene may be in the same relative focus.

For stationary scenes the transparencies are placed about 18 inches from the lens. For panoramic scenes a device is employed that accommodates transparency films 16 x 18 inches in size.

Coated Lenses : See Lenses coated.

Cobwebs: A small bell-shaped container of the size of an ordinary drinking glass is attached to centre screw of an ordinary electric fan, another screw from the centre of the container holds on a lid which can be screwed up tight or loosened as required. The container is filled with a mixture of Dunlop rubber solution that has been thinned with methylated spirits, and the cap is screwed down so that an aperture is left of the thickness of a razor blade. When the electric fan is put into motion, the container revolves and the liquid runs up the side and escapes from the crack left between container and cap. Because of the narrowness of this opening the liquid only comes out in a very thin spray and this is immediately blown forward by the force of the fan behind. The strands thus made stick to anything in the way, and when dusted over with filler's earth becomes spider's web.

Code number: Numbers printed on edge of film that do not have

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

latent edge numbers, appear at one foot intervals, thus providing sync marks for editors.

Colour Cinematography, Sub-Standard : Several systems of colour photography are available to the sub-standard worker. Dufay-color is available in 16 mm. and 9.5 mm. size.

Kodachrome is a subtractive process using the integral tripack method. Three layers of emulsion, separated by two intervening layers of dyed gelatine, are coated on to a common support. The total thickness of these five layers is only about 1/1000 in. The upper layer records the blue values of the image, the second layer records the green-component image, and the bottom layer records the red-component image.

The film is developed and bleached in the usual way, and is then immersed in dye-coupling developer which also deposits blue-green dye indirect proportion to the silver densities which are developed. The top two layers are then bleached again to re-form silver halide, and are then redeveloped in a dye-coupling developer which deposits magenta dye in the top two layers in proportion to the silver images. Then the top layer only is bleacted, and re-developed in a developer which deposits yellow dye in the top layer in proportion to the silver image. Finally the silver is dissolved away, leaving three continuous-tone dye images, of practically grainless character.

Agfacolour employs the integral tri-pack method in another way. There are three layers of emulsion which, from the top downwards, record the blue, green and red values of the subject. The emulsions have incorporated in them certain substances, which do not affect the sensitivity of the layers but have the property of combining with the final developer, which is used after first development and bleaching, to form dye images in the three subtractive primary colours in proportion to the silver positive images which are developed. The top layer has a yellow-dye-component, the second layer has a magenta dye-component, and the bottom layer a blue-green or cyan dye-component. Upon completion of second development the silver image is dissolved away.

Dufaycolour must necessarily be used in the camera with the emulsion facing away from the lens. The same position is adopted in the projector, and if it is spliced in with original reversal film, it will be necessary to refocus when changing from one to the other as the two emulsions face different ways. If it is spliced with a positive print or with a copy reversal film, all the emulsions will face the same way in the projector.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Kodachrome and Agfacolour have the emulsion facing towards the lens in both camera and projector. They are obtainable in both 16 mm. and 8 mm. form.

Colour Film: The association of movement with colour has presented a peculiarly difficult problem, but many attempts have been made to solve it. One of the earliest methods, which still persists today, consists of taking colour-separation negatives, either through the normal three-colour filters, or through two colour filters, and afterwards combining them by printing them consecutively on the film strip and projecting them through three- or two-colour filters in correct order and in rapid succession. There are many disadvantages, the most outstanding being non-registration of the pictures due to movement of the subject while the exposures are being made.

Fairly successful results have been obtained in the past by taking two-colour separations simultaneously through a beam splitting device which diverted the incident rays in two directions on to two strips of negative material. The resultant negative pictures were used to obtain pictures in two colours complementary to those of the taking filters, and these pictures were then combined in some preferred manner.

The bi-pack method has also been used to obtain two-colours negatives. In this method two films are placed in close juxtaposition, and by control of the sensitising of the two films, and the introduction of a dye filter layer, the halves of the spectrum have been recorded separately but simultaneously with some degree of success.

The processes which are most generally in favour at the present time rely on three-colour analysis and synthesis, using either the additive or subtractive method.

Coloured Movie: In America, by 1888-1889, Francis Jenkins took a film of a girl dancing and had it coloured picture by picture, and so produced the first all coloured movie.

Colour Films, Densitometer for: See Densitometer for Colour Films.

Colour Materials, Sensitometry of: See Sensitometry of Colour Materials.

Colour Photography, Colour Temperature in: See Colour Temperature, in Colour photography.

Colour Television: There are three major systems: (1) the CBS

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

field sequential; (2) the RCA dot sequential; and (3) the CTI line sequential system.

The essential difference between the three systems lies in the colour switching rate. (See Figure No. 1). On the left side of the figure is shown in schematic form the field-sequential system proposed by CBS (Columbia Broadcasting System). In this system, a complete field is transmitted in one colour. The following field is sent in the second colour and the following field in the third, and so forth.

In the center of the figure is illustrated the line-sequential system proposed by CTI (Colour Television, Inc.). In this system the colour is changed at the end of each line so that each field contains a third of its scanning lines in each primary colour.

On the right side of the figure is shown the dot-sequential system proposed by RCA (Radio Corporation of America). In this system, the colour is switched many times during each line. The rate currently proposed by RCA is to complete the colour cycle in a period corresponding to a frequency of 3.6 megacycles.

Colour Television — CBS: See Television, CBS Colour.

Colour Television — CTI: See Television, CTI Colour.

Colour Television — RCA: See Television, RCA Colour.

Colour Temperature. in Colour Photography: Colour temperature as a specification for light sources is inadequate to define any light source for colour photography which departs appreciably in energy distribution from the back body. It should probably be restricted to use with tungsten incandescent lamps only. Meters devised to measure colour temperature by means of measurements of the relative energy in two wavelength bands are likewise not trustworthy when applied to any but the black-body sources. A "three-point", rather than a "two-point", meter is needed for the precise control of photographic exposures. Such a meter should have sensitivity distributions that match those of the three emulsion layers of the colour film.

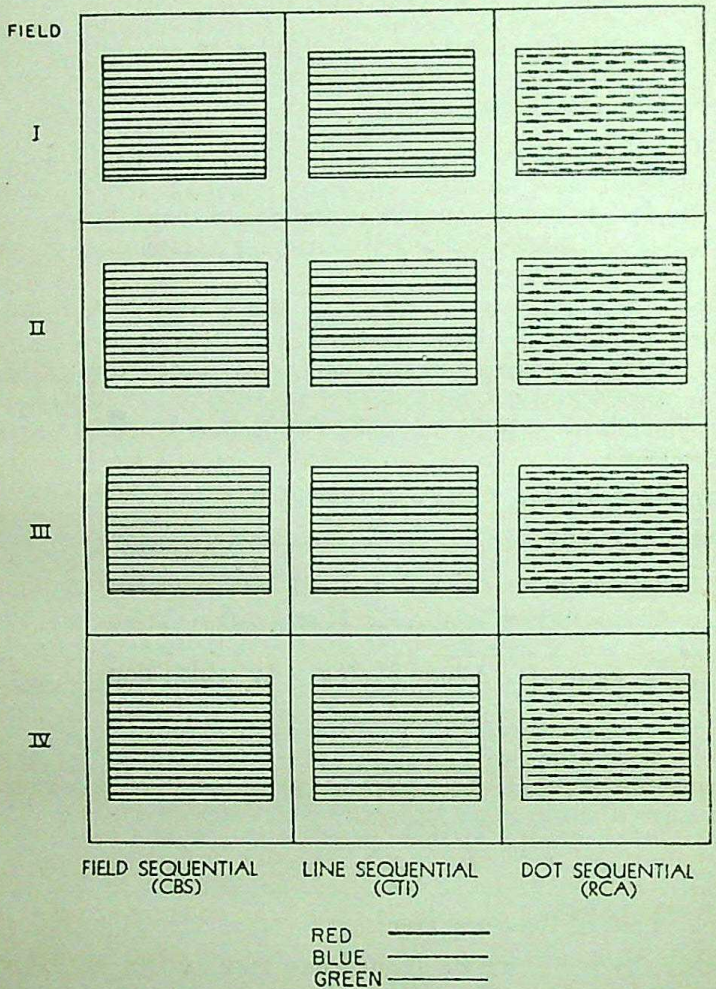
Comedy: Comedies can be divided into these classes: (1) Farcial, (2) Character comedy, (3) light comedy, (4) crazy comedy, (5) musical comedy, (6) personality comedy.

Commentary: Description of a picture written to be spoken by a commentator or by a story-teller. While writing the commentary, the commentary writer should bear few points in mind.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

(Fig. No. 1)



CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

(1) the language of the commentary must be simple so that it should easily be understood by the listeners; people never bring dictionaries with them when they came to see the picture. (2) As far as possible the words beginning with the pronunciations like "Sa, Si, Su" etc., and words demanding emphasis on the pronunciation of "Pha" should be avoided. Sentences having alliterations like "Six sick soldiers sighted seven slowly sinking ships", should never be used. (3) Commentary is to be written for speaking and not for reading.

Commentary, a word count for: See Film conversion table.

Commentator: The commentator is the medium of interest between the picture and the audience and as such he must use confidence, friendliness, inflection of tones and clarity of speech to arouse audience interest. Commentary speaking is not just sitting before a mike and reading in a cold, routine-like stereotyped manner.

Every word spoken must be crystal clear and any tendency to drop the voice in the last words or syllables of the sentences of a commentary must be avoided. The Commentator should try to project his personality through his voice and his manner of speaking must be pleasing. A badly spoken commentary can adversely affect the good film and a well-spoken commentary can support a weak picture.

Composite: Single motion picture film stock on which sound and picture are seen. Also called a "married" print.

Composition: Selection and arrangement of the subject to secure the qualities generally required in a picture-balance, harmony and so on. The term construction is used with a similar meaning.

Composition of the Developing: See Developing, composition of the.

Condenser: A large lens, usually imperfectly corrected, used to collect or concentrate light upon a limited area. Photographically, the chief use of a condenser is in an enlarger or projector.

Conflict: Most necessary in any kind of story. Omit conflict and you sacrifice drama.

Constant Speed (Recording): All who have had experience with recoded sound recognize the importance of minimizing speed fluctuations both in recording and in reproducing. Propelling the film through the recording or reproducing light beam on a

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

sprocket is almost sure to give rise to measurable disturbance at the tooth frequency or 96 cycles per sec. However, a number of recorders operating in this manner have given creditable results. Conditions for direct sprocket drive are more favourable in the case of a recorder because it is always working with new film, whereas printers and reproducers must work with film of various degrees of age and shrinkage.

A preferable arrangement for both recording and reproduction employs a smooth drum on which the film is carried past the optical system. Flywheels are used to resist changes in speed. The serious problem in this construction is that the flywheel tends to oscillate above and below its correct speed. A number of damping systems have been employed to prevent such oscillations.

Construction: See Composition.

Contact printing: Reproduction method whereby light is directed through a developed negative on an unprocessed positive film stock, each being in contact with the other.

Continuity: Ensuring such details as that actors who have to wear the same clothes, and make up in apparently consecutive shots actually taken at considerable intervals of time.

Continuity: (1) Easy transition from one shot to the next and from one sequence to the next without awkward breaks or discrepancies.

(2) The scenario written with all episodes in their proper sequence. Live TV is performed in continuity; film seldom, if ever.

Continuity: The business of matching film scene with film scene.

Continuity Sketches: Drawings made to illustrate the exact nature and content of a proposed film scene.

Contour Light: See Lighting (Indoor).

Contrast: See Relational Cutting.

Contrast: The ratio between densities in the least exposed and highest exposed areas of the picture.

Cookie: See Cuckoolorus.

Copyright Act: The copyright Act is called "The copyright Act, 1957," and it extends to the whole of India. In this Act "author" means, in relation to the cinematograph film, the owner of the

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

film at the time of its completion. "Cinematograph film" includes the sound track, if any, and cinematograph shall be construed as including any work produced by any process analogous to cinematography.

"Infringing copy" means, in relation to a cinematograph film, a copy of the film or record embodying the recording in any part of the sound track associated with the film, and "performance" includes any mode of visual or acoustic presentation, including any such presentation by the exhibition of a cinematograph film, or by means of radio-diffusion, or by the use of a record, or by any other means.

For the purpose of this Act "publication" means, in the case of a cinematograph film, the sale or hire or offer for sale or hire of the film or copies thereof to the public.

Copyright shall not subsist in any cinematograph film if a substantial part of the film is an imfringment of the copyright in any other work; and the copyright in a cinematograph film or a record shall not affect the separate copyright in any work in respect of which or a substantial part of which, the film or record is made.

Copyright means the exclusive right, by virtue of, and subject to the provision of, this act, to make any cinematograph film or a record in respect of the work; in case of an artistic work, to do or authorise the doing of any acts to include the work in any cinematograph film; in case of the cinematograph film, to do or authorise the doing of any of the following acts, namely: (a) to make a copy of the film; (b) to cause the film, in so far as it consists of visual images, to be seen in public and, in so far as it consists of sounds, to be heard in public; (c) to make any record embodying the recording in any of the sound track associated with the film by utilising such sound track; (d) to communicate the film by radio-diffusion. The same rule applies to the record also. Subject to the provisons of this act, the author of a work (cinematograph film) shall be the first owner of the copyright therein.

In the case of a cinematograph film, copyright shall substantial fifty years from the beginning of the calender year next following the year in which the film is published.

In the chapter XI, the acts which shall be deemed to be an infringment of the copyright and the acts which shall not constitute an infringment of the copyright, have been throughly explained.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Any person who knowingly infringes or abets the infringment of the copyright in a work, or any right conferred by the copyright Act, shall be punishable with imprisonment which may extend to one year, or with fine, or with both. Please note that, this is only the broad outline of the copyright act (in relation to a cinematograph film) and not the full text. For details, the Act itself should be referred to.

Cording: The editor's method of identifying parts of the film he wants fine grains made of, or dupes. A string placed in perforations at start and end of wanted strip gives term its name. Mercer clips also can be used for the same purpose — or pressure tape known as come-cleans.

Corrected print: Prints made after all timing of exposives has been made — or colour prints, after they have been colour corrected.

Countries producing children's films: See Children's Films producing countries.

Costume Department: The department where a copy of a scenario is sent for making dresses for the artists taking part in the particular picture. This department sometimes works in with the art-director, when he is also designing the costumes.

Cover shot: Extra scene photographed of a shot already okey. Sometimes called a "Protection" shot.

Crane: Mechanical contrivance by which camera, operator and sometimes the director may be elevated to a great hight. Used for birdseye views of action, zooms and other trick camera effects.

Crawl Title: See Roller title.

Credit Title: A list of the cast and technicians, appearing at the beginning or at the end of the film.

Cropping Method for Wide Screens: The simplest method is to project an enlarged picture from standard film, and to mask off the top and bottom of the picture until the desired aspect ratio of 1.66 to 1 or 1.85 to 1 is reached. With standard sound film, the width of the picture frame cannot be increased over .825 inch, due to the sound track and the sprocket holes.

Aspect ratio	Film aperture (gate)
1.33	.825 x .600
1.66	.825 x .497
1.75	.825 x .472
1.85	.825 x .446
2	.825 x .412
2.5	.825 x .330

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

The only alternative is to reduce the height of the picture, either in the printing or by reducing the aperture plate, in the film gate of the projector head. The new aspect ratio, thus obtained, can be blown up to the desired size by using shorter focal length lenses.

Cross Cut: The presentation of parallel action.

Crossfade: To fade in one sound while another sound is faded out. This can be done with sound and music or voice.

Cross lighting: Illumination thrown on the characters from the sides to increase dimentional effect.

CT Filters: See Gevacolour Filters.

CTB Filters: See Gevacolour Filters.

CTO Filters: See Gevacolour Filters.

CTO Filters, table of: See Filters CTO, Table of.

Cuckoolorus: Sometimes called just "cookie." Baffles in assorted shapes and sizes placed in front of spotlight to throw shadows of varied designs on backwall.

Cue: Line or signal to performer to start action.

Cue marks: Signals placed on film to guide projectionist in changing from one real to another, or to close out the show or, in TV, to go to black. First signal appears in upper right 12 feet from end of reel final signal one foot from the end. Marks are usually placed on four successive frames of picture in each case.

Cue sheet: Used by sound mixer in re-recording to regulate his controls of the faders.

Cut: The instantaneous transition from one shot to another. Also to trim and join the shots together.

Cut: To the editor it means moving from one scene to another with no intervening action. To the director it is his command to stop everything.

Cut-away to Cut-in: A film sentence that draws the spectator's attention from the main action, e.g., a scene showing the reaction of a bystander to a street fight.

Cutting: Editing a film.

Cutting Colour films: When using colour film it is more econo-

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

mical to make a black-and-white copy for using as a cutting copy.

Cutting copies: When using negative-positive film, it is better to begin by editing the positive print, and then cut the negative to match it. The negative should never be projected as it is more easily scratched than a positive print. If there is any scratch on the negative film it will be reproduced as dark lines in all the future prints prepared from the scratched negative.

Cutting Negative: Hold the negative face to face with the print and slide up and down in relation to one another until they coincide. Then it will be easy to cut the negative.

Cutting, Parallel: When an action of a film is going in two places at once, the two sequences can often be intercut. This is called parallel cutting.

Cutting Relational: See Relational Cutting.

Cutting Rough: After the film is roughly assembled without making any attempt to decide upon the exact length of each shot it is called rough cutting. This rough cut version is seen and studied on the screen before making final adjustments or corrections.

D

Dailies: See Rushes.

Dead mike: A microphone not alive, not connected, or out of order.

Debrie matipo colour: It is printing machine (optical system) used for colour as well as Black and White films. For Black and White the only change is the omission of the optical block, but the bulb and reflector are retained.

Dence: A 2000 watt bulb used to highlight certain parts of the scene.

Densitometer for Colour Films: A new densitometer for the analysis of colour films reads densities with a narrow wavelength band at any desired wavelength between 350 and 760 mu. This instrument was constructed utilizing two commercially available units: a Coleman Model 10-S Double Monochromator Spectrophotometer and a Western Electric RA-1100-B Densitometer.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Density: (1) For sensitometric purposes density is defined as the logarithm of the opacity. In everyday parlance it is common to speak of the density of the negative as a whole, and while the meaning of the term in this connection is evident enough, it is not susceptible of precise definition. A dense negative is one of which all parts have high opacity; it is the result of an exposure considerably in excess of the minimum correct exposure.

(2) The term "Density" refers to the degree of blackness produced in given emulsion. If, then, a known amount of light is directed upon a processed film surface, that part which is passed through the film will bear a relationship to the density of that film. That part of the incident light which is lost by introducing into the beam a film of known density can be termed the "opacity" whereas, that part which passes through the film can be termed the "transmission". In the year 1890 HURTER and DRIFFIELD made their classical experiments which established the relationship between Density, Opacity, and Transmission.

Density Wedge: The density wedge is also known as Grey Wedge. Strip of transparent material increasing in density from one end to other. Moved along in front of the lens, it gradually decreases or increases the amount of light reaching the film. Used for fades.

Depth of Focus: Synonyms: Depth of Field, Depth of Definition. Range of distances over which all objects will be sufficiently sharp according to some predetermined standard of sharpness. Depth of focus is most conveniently calculated from a knowledge of the hyperfocal distance.

Description of a Sound Track: A photographic sound record is designed to be used with a lamp and a photocell, which has the property of passing electric current in proportion to the intensity of the light which strikes its cathode plate. The sound track must provide the means for producing fluctuations in the light transmitted to the means for producing fluctuations in the light transmitted to the photocell, which correspond with adequate fidelity to the variations in sound pressure which originally reached the microphone. In the case of 35-mm. motion picture film a space has been provided for the sound track by narrowing the picture, while in the case of 16 mm. film the space has been provided by omitting one row of sprocket holes.

For reproduction, the film is carried past an optical system. Light from the lamp is restricted by a narrow slit an image of which

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

is produced on the film by the objective lens. The condensing lens, which is of such focal length as to produce an image of the lamp filament within the aperture of objective lens, causes the slit to appear illuminated throughout its length. The photocell is placed back of the film so as to receive as much of the light reaching the film as is not obstructed by the developed silver in the track.

The image of the slit on the film can be called "*A line of light*", and ideally it should be a line for perfect reproduction, but in order to pass a reasonable quantity of light to the photocell it is given a width of the order of 0.001 in. while its length is normally about 0.084 in. for 35 mm. systems and 0.071 in. for 16 mm. systems. The mechanical requirements are that the film shall move at the correct uniform rate through this light beam, in a direction at right angles to the slit image, that it be maintained in the plane of sharp focus, and shall not have any sidewise motion or weaving beyond certain small limits or "tolerances"

A part of the light which strikes the film is absorbed by the silver in the emulsion at that point, and the remainder passes through the photocell, the electrical output of which is amplified and applied to loudspeakers. As the film carrying the sound track passes through this light beam, it absorbs varying amounts of the incident light. The light modulated in this manner determines the sound waves radiated from the loudspeakers.

The photocell current depends on the total quantity of light reaching the cathode. If the correct fraction of the light is absorbed by the silver image, the desired result is achieved whether it is absorbed by a uniform gray deposit across the entire track width, or by rendering certain portions of the track completely black. Thus there are 2 types of track, one of which is known as the (1) "*Variable-density*" system, and is composed of various shades of gray, the density of the silver deposit being uniform across the track; (2) the second type is known as "*Variable-width*", or "*Variable-area*" system, the track being divided into essentially black-and-white areas. The boundary between these areas is a picture of the sound wave.

It is obivous that the recording of a variable-area track requires that the length of the illuminated portion of the slit shall be varied from instant to instant in accordance with the sound pressures in the original sound, while the variable-density recording requires that means be provided for varying the inten-

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

sity of the exposing light, the illumination at any instant being uniform throughout the slit length.

Sound consists in variations of air pressure above and below the average atmospheric pressure. The electric currents which are produced by the microphone and are used for transmission of the sound, may be alternating, but the exposing light cannot reverse sign but must consist of a certain mean value of light on which the fluctuations are superimposed. Similarly the light reaches the photocell consists in a steady value on which fluctuations are superimposed, and the same is true of the current from the photocell. The maximum light which can reach the photocell is that which would pass through clear film. The sound track must cut the average light to 50 per cent or less of this maximum, thus permitting upward and downward variations between zero and 100 per cent.

Developing, Composition of the: The composition of any developer should meet the requirements of the film in use. The various properties of the different films, such as negative, positive, duplicating, sound recording films, etc. must be taken into account and likewise the various developing machines. For this reason, it is impossible to find a developer formula which meets every requirement.

Nevertheless, any developer formula, for whatever purpose, should adhere to the following outlines:

1) The developer should work clearly, without fogging.
2) It should develop a density corresponding to the exposure, that is to say, it should make sufficient use of the inherent speed of the film.
3) It should obtain the contrast (gamma) required in a developing time which matches that of the developing machine.
4) The development should result in as favourable a density curve as possible.
5) The developer should yield as fine a grain as possible.
6) The developer should have good keeping properties, give uniform results throughout its whole working life and should be easy to regenerate.
7) It should be as independent of temperature fluctuations as possible.
8) It shold be easy to make up and it should be cheap.

Dialogue: Dialogue should be progressive, i.e., the writer must keep his mind ahead of the action on the screen. In writing for

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

films you are writing for an audience of millions. You must therefore be readily and easily understood.

Wit, wisdom, or thought-provoking observation tones up dialogue. Dialogue helps tremendously in shaping characters, but do not forget to put in plenty of visual touches. Sometimes dull, flatish phrases have dramatic value. Remember the following four points: (1) Be concise and snappy, (2) Construct the dialogue so that it shapes the characters, and (3) tells the story. (4) Sprinkle where characterization permits, with wit, wisdom or observation.

Every line of dialogue must do three things: (1) It must advance the story, (2) promote the characterization and (3) inform the audience. Dialogue must be used sparingly and only when the action cannot be conveyed by pantomime.

Dialogue picture: Film in which the performer's speeches are recorded directly as his lip movements are photographed. Also called "direct recording."

Diaphragms: Very frequently called "Stops", are obstructions places before, behind, or within a lens to cut off marginal rays while permitting the central rays to pass.

Difference between Density & Area Recordings: Since the sound track print is on the same film as the picture, it must receive the same development as the picture, and picture development has been practically standardized at a gamma of about 2. Hence the desired difference in contrast (or gamma product) for the 2 systems must be provided by the difference in negative development. In general both systems use the same types of film for the original recordings or negatives, the density recordings being developed in low contrast, negative-type developers to gammas ranging for the most part from 0.4 to 0.7, while area recordings are developed to gammas of 2, 3, or even more, in many cases stopping just short of the production of developer fog.

Both systems are subject to losses in high-frequency response, resulting from finite slit size, and imperfect resolution in the film image. The area system imposes more severe requirements with respect to narrow recording beams, and freedom from printer slippage, but owing to the higher development, the required densities are obtained with less exposure, making it practical to record with narrower slits.

Diffusers: Gelatines or screens used to soften harsh lights.

Dimensions and Angles of Slit: See Angle & Dimensions of Slit.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Dimension of time: Dimension which is added to photography by a man who writes a script.

Dimmer: A bank of rheostans used to adjust intensity of light, raising or lowering it at will.

Dinky inky: And sometimes vice versa. A 150 or 200 watt bulb used to highlight certain parts of the scene.

Direct cut: See Cut.

Director: The person who is responsible during the shooting of a picture, for transferring the meaning and expression of a story on to celluloid.

He should always let the actors carry on a little beyond the point at which a change of angle is desired and start then a little earlier in the next shot, to give the editor some freedom of choice.

It is not easy to define the qualifications which go to make up a good Director. No doubt, his cultural background and outlook on life should be such as can leave their impression on the films that he might direct. A good Director, in the very nature of his functions has to be a man of the words as well as of ideas, possessing tact for managing human material, with its multiple emotions and idiosyncracies, and having the capacity to comprehend and direct the use of technical equipment to its best advantage. These are qualities which can be seen rather than translated in academic instruction. Yet, these are not all; there are others which beggar precise definition.

The functions allotted to the director of a picture are not the same in different parts of the country.

He has the task of coordinating the activities of half a dozen technicians, a number of stars and experts of the story and music departments, into one unitary channel.

There can thus be no gainsaying the fact that a director is the pivot round which the whole organization of a film must revolve. His personality must give a distinctive touch to a picture. His tretament should go a long way to stamp the picture as the work of a genius, a master, a charlatan, or an impostor. It should be on him that the executive responsibilities must lie of translating into the film its higher as well as the common purposes.

Direct recording: To record commentary along with a picture shown on the screen. See Dialogue Picture.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Direct Sound Recording: Recording of the dialogue as it is spoken during the photagraphed scene.

Dissolve: The gradual transition from one shot to another, the second being superimposed on the first at the point of transition. The dissolve, or mix as it is also called, is the effect of merging the one scene into another. (See Mix).

When using reversal stock the cheapest way of making a dissolve is to wind the film back in the camera at the time of filming. But it is not always possible for several reasons. Either the two scenes to be dissolved are set in locations a great distance apart, or they are not filmed immediately one after another.

Dissolve out and Dissolve in: The dissolve is used as a link. It bridges over from one situation to another without a jarring break of action. It is as *Wipe.*

Distributor: An agent between the producer and an exhibitor. He takes the picture, on commission bases from the producer and gives it to the various exhibitors on his own special terms. Picture is also purchased outright by the distributor for exhibition. This business is conducted by an individual or by an institution.

Documentary: The medium of the film, like the medium of writing, is so wide in its possibilities of expression that it cannot be classified except very loosely. A relative division into three categories might be made as follows:—

1) The use of motion photography for record purposes.
2) The use of motion photography for "the creative treatment of actuality."
3) The use of motion photography for the creation of film fiction.

It was Robert Flaherty, a sort of film explorer, who took the camera to real life for real life's sake. The Revillon Freres Fur Company of New York sponsored his Nanook of the North. This was in 1922.

The documentary film could be described as the higher journalism of the screen. Its purpose is broadly to help the world understand the world. It is creative in so far as it analyses and interprets society from the viewpoint of an individual or a school of thought. It is, therefore, broadly educational. It is also popular, but its aim is more closely allied to propaganda than to simple instruction.

Documentary: (1) is a Non-fiction film using material phota-

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

graphed from real life. It is the creative interpretation of reality.

(2) A factual film subject using actual backgrounds and characters of events being shot as opposed to simulated background and performers playing parts.

(See also Cinematography, History of.)

Documentary, Movement in: Movement in a documentary is a little harder to grasp and to achieve. In such a film, movement must emphasise special qualities of objects or people.

Documentary Script Writer: Documentary script writer must survey his ground in advance. He must assure himself his material is capable of being related to telling movement. He must remember that the strength of the script must be founded on material which is likely to provide telling movement. Static object, which has no movement or relation to movement, may be introduced into a film with special effect.

Double Exposure: (1) Two exposures on the same film.
(2) Exposing different parts of the negative in camera at different times to get composite scene.

Double head projection: Special projection equipment having separate sound and picture heads and magazines for film to show pictures and sound on separate prints.

Double Printing: Similar to double exposure excepting that scenes are superimposed one on another in the printer.

Double system: Term used to denote that the production of sound and picture are being recorded separately. Single system is the term denoting that both are being recorded simultaneously on one reel of film.

Dry run: Last rehearsal before shooting with empty camera magazine but all lights, action, focus and performances as they are to be recorded.

Drying cabinet: The drying cabinet is divided into two sections by a sheet metal plate, supported vertically down the centre of the cabinet. Each section contains two racks of film, the top rollers of which rotate about a fixed centre, and the lower rollers are mounted in brackets which are free to ride in vertical channels.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Dub: To put separately recorded sound on track fitted to lip movements of the performer on screen. Sometimes called lip-sync.

Duddell Oscillograph: See Sound Recording, Variable Area System.

Dunning Process: This proess is intended for use in black and white film production and is not suitable for use with colour films since it employs coloured images to act as filters when one scene is to be superimposed upon another.

Dupe: A duplicate copy of the original film, either negative or positive, often used to facilitate cutting.

Dupe negative: A negative film made from a fine grain print of another negative exactly duplicating it. Much used in making optical effects.

Dutch angle: Term used to denote that camera will be tilted at an unusual angle. An effect introduced in silent screen days by the camera.

Dynamic Light: See Lighting (Indoor).

E

Earthquakes, how to make: One process is to make model of a building which collapses and photograph it. Then project this so that the actor in the foreground reacts to it, while only a small amount of dust is dropped upon him and one or two carefully planned beams fall down on the foreground.

Echo chamber: Device used to give recording a hollow sound.

Economy of a Story: See Story, Economy of a.

Edge numbers: Identifying letter and numbers on edge of film negative at one foot intervals. These are latent images put there by the manufacturer which become visible when negative is developed. Very helpful to editors in matching frames for negative cutting and for synchronization.

Edison: Inventor of a "Kinetoscope"—a talking machine. (see Kinetoscope).

Editing: The process of taking the shots apart and reassembling them in their correct and most effective sequence is known as

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

editing. Another name for editing is *Cutting*. Editor has to sort out the N.G. and O.K. shots in serial order and join the latter in a logical order. The basis of all editing is cutting and joining. The essential apparatus for this work is a pair of scissors, a splicer, a bottle of film cement, and a set of rewind arms. Before applying cement, the emulsion must be removed from the dull side of one of the two pieces of film to be joined. There were many pioneers but it was D. W. Griffith who made the greatest single contribution to method and style in editing.

Editing is the language of the film director. Just as in living speech, so, one may say, in editing: there is a word—the piece of exposed film, the image; a phrase; the combination of these pieces. Only by his editing methods can one judge a director's individuality.

Editing, hints for: (1) One of the aims of the film editing is to produce a slick result, so never allow a shot to remain unduly long on the screen.

2) N.G. shots should be stored under subject headings as they also may be useful in emergency cases.

3) Always splice a good length of blank film on to the beginning of a reel. The leader should be of five feet in length.

4) There should be a good length of blank at the end of a reel, known as a trailor. It may not be as long as a leader but three feet is better.

5) Never cut a tilting or panning shot unless tilting or panning is completed. But tilting or panning can be mixed with another tilting or panning shots, keeping the beginning frame and the last frame steady.

6) Make a rule of providing a white leader and a black trailer.

7) Write the name of the film on the white portion of the leader and it will indicate to the projectionist that the reel has been rewound.

8) Provide a changeover clue at the end of each reel by punching a hole usually in the top right hand corner of four or five frames just before the end of the last shot.

9) Changing over he shots must be very smooth to the eyes. It means a long shot should be followed by midlong shot, then a mid shot and then a close shot. Close shot should never be followed by a long shot, as long shot should never be followed immediately by a close shot, so order of joining the shots will roughly be as follows:

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

(a) long shot, (b) medium shot, (c) medium close shot, (d) close up (e) medium shot and (f) long shot, and so on.

10) While joining two shots in which there is movement, it is necessary to place them side by side in order to find out two frames that will match. Cut would be made exactly there.

11) The character should have the same expression and be in very nearly the same attitude at the point of joining, if shots are to match correctly.

12) Find the best point at which to change from one camera-angle or distance to another.

13) Match the action from shot to shot.

14) Judge the time a shot should remain on the screen.

15) A simple subject should remain on the screen for only short time ,and subject containing much detail should remain longer.

16) Shots in which the subject moves out of the frame should be cut just before the screen becomes empty.

17) To give emphasis to a particular situation the action should be broken up into series of shots.

18) When cutting an action the movement of the character shoud be slightly more advanced at the beginning of the second shot than at the end of the first.

19) Avoid using the same device too often.

20) One shot should not be followed by 180 degree angle shot.

21) Do not follow a left hand pan with a right hand pan unless there is special reason for doing so.

22) When splicing sound film it is better to paint the sound track with blooping ink or with black film to reduce the noise during projection.

Editor: Editor is a person who assembles a complete film from its many sentences.

Educational Film: Educational film is a visual textbook, ranging from the simplest representation of a fact to the most advanced and academic.

Emulsion: Photographically, a mechanical mixture of any sensitive salt of silver in extremely minute division, held in suspension in any viscous vehicle, such as gelatine or collodion, which, when spread upon any transparent medium, shall pre-

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

sent a generally homogeneous appearance when viewed by transmitting light.

Emulsions Orthochromatic: Term applied to emulsions whether on plates or films, that have been rendered sensitive to green and yllow light.

Although sensitised to yellow and green, will show that the orthochromatic plate or film still retains a disproportionately high sensitivity to value.

Emulsions Panchromatic: Plates and films sensitised for all visible colours, including red, are termed panchromatic to distinguish them from those which have been sensitised for green and yellow only.

E.T.: An electrical transcription.

Exhibitor: One who exhibits the picture in the theatre. Like distributor, the business is carried out by an individual or by any concern floated for the purpose.

Exposure: (1) The amount of light which is allowed to reach a single frame of film during shooting.

(2) The action of submitting any sensitive surface to the action of light, whether in the camera, when enlarging, or in a printing frame, is called "exposure."

(3) Photographic exposure is the product of the INTENSITY of the light falling upon the film and the TIME during which such light is permitted to operate.

Exposure Meters: The most worthwhile adjunct to either professional or amateur photographer is a reliable exposure meter.

The general operation of such a meter is:

1) Set the film speed to the value indicated for the film used.
2) Direct the meter at the scene or subject.
3) Note the brightness reading on the indicator dial.
4) Set the pointer on the calculator dial to the brightness value read on the indicator dial.
5) Thereafter the correct exposure may be read from the calculator for any given shutter-time or lens opening.

This instrument is used to determine the correct exposure for any given lighting condition.

Exterior: Scene taken out of door.

Extra: An atmosphere player.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

F

F.A.B.: (Film Advisory Board) An advisory body was set up in June 1940 to advise the Govt. of India on the production and distribution of films for war propaganda. The Film Advisory Board had its headquarters in Bombay, and consisted of representatives of Indian and Foreign film industry in India, including importers of British and American films. In addition to producing shorts locally, the Board undertook the dubbing with sound tracks in Indian languages, the shorts received from the British Ministry of Information and other foreign countries.

All the newsreels as well as documentaries whether produced by the Films Division or taken over from private producers are previewed by the Film Advisory Board newly appointed by the Government of India in 1949. After a newsreel or documentary has been passed by this Board, they are seen and certified in the usual course by the Board of Film Censors at Bombay.

Fade: (1) One of the most effective of the camera's punctuation marks is the fade. It is something like a full stop at the end of a sentence. Fade can be made by cutting down the light in the camera lens, by closing the diaphragm or the shutter or using a grey wedge.

(2) Gradual appearance or disappearance of a scene from the screen. (See Farmer's Solution).

Fade in: Gradual emergence of a shot from darkness.

Fade out: Gradual submergence of a shot into darkness.

Fade-in and Fade-out: The fade-in implies the beginning of a new chain of thought. The Fade-out is used at the end of a sequence to end a chain of thought or for a definite break between certain period.

Fader: A rheostat or electrical device used to control the volume.

Fading in: It is a gradual appearance of a picture out of the darkness. The first scene in a film is usually faded in.

Fading out: It is a gradual disappearance of a picture into complete darkness. The last end of the film is always faded out. A fade out should not be followed by a normal shot, but by fade in.

Fantasound: One of the greatest demonstration of the successful applications of all the developments was given in the Walt

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Disney feature film "Fantasound". This system was developed to give the reproduced sounds the three dimensional characteristics met with in real life.

Farmer's solution: Farmer's solution is a mixture of solution of potassium ferricyanide with hypo. Sixty drops of a ten per cent solution of potassium ferricyanide to each fluid ounce of twenty-five per cent hypo solution. (The former is a strong poison). Fades are produced by bleaching the negative in it in progressive stages.

Fast Motion: The trick of filming with the camera running abnormally slow, so that when the film is projected at normal speed, the action is quicker than it was in reality. Opposite of *slow motion.*

Field: Field in animation terminology, is a term used to define the boundaries of an area to be animated or photographed.

Dimensions may be arbitrary. Acme system, which defines a field unit as the equivalent of 1 inch in width. Any field number, then, becomes a multiple of one: i.e. a 12 field would be 12 inches wide; an 8 field, 8 inches wide, etc.

Film: The thin pellicle or skin or sensitive material on plates or paper is spoken of as the film, although the term is more generally applied to celluloid coated with sensitive emulsion for exposure in the camera.

The film moves: the design moves: the lighting varies as the objects and persons move.

In order to achieve a smooth transition from each single picture to the next slightly different picture, the screen is blacked out for one forty-eighth of a second while it is replaced. That is, for one-half of the time an audience is seeing a film sitting in total darkness without knowing it.

Films, Agfa Copying-Black-and-White: As a printing material for copies of feature films, film titles and back-projection, Agfa produce two types of film:

1) Agfa Positive Fine Grain Film. This film is slightly slower than the film formerly supplied but yields a greatly improved reproduction of picture and sound.

2) Agfa Positive Fine Grain Film, designed for back-projection, on a base of 0.200 mm. thickness. The photographic properties are the same as those of the standard Positive Fine Grain Film .

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

These films can be developed with any clear and vigorously working developer.

It is advisable that the Agfa Positive Fine Grain Film should be developed to a higher gamma than the normal positive film, since on projection the light will be scattered more than usually on account of the extremely fine grain of the film.

Films, Agfa Colour: General Notes: The Agfa colour negative-positive process permits the production of feature colour films in a technically most simple way. The method, like the normal black-and-white process, consists of only two working operatoins, the negative and the positive process. By means of the negative process a negative in complementary colours is obtained, whilst the positive film in the correct colours is produced by printing it directly from the negative. The method of operation is characterized by the fact that the actual filming is performed with an Agfacolour Negative film in the same way as a black-and-white negative film is exposed and complementary colour negatives are obtained by processing in a developing machine or by other means, from which by way of a printing and developing process copies are made, which are ready for projection. Furthermore, this colour process permits duplicate-negatives to be made from complementary colour negatives by using the Agfacolour-Reversible-Duplicating-Negative Film, which can also be printed on Agfacolour Positive Film.

The following materials are available for the Agfacolour negative positive process:

For taking:	Agfacolor Negative Film, Type B333 Agfacolor Negative Film, Type G334
For projection:	Agfacolor Positive Film, Type 4. Agfacolor Positive Film, Type 5.
For making duplicate-negatives:	Agfacolor Reversible Duplicating Negative Film.

Moreover, to print from negatives of flat gradation with or without mask:

Agfacolor Positive Film, Type 7.

On principle all these films are of the same design. They are multi-layer films, having three emulsions layers coated one on top of the other on a normal film base. Each of these is sensitive to an individual colour. The upper layer is sensitive to

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

blue light, the central layer to green light and lowest layer to red light.

Besides the light-sensitive silver the individual emulsion layers contain colourless colour-couplers, which form the various image dyes. In order to subdue the inherent sensitivity of the emulsion layers to blue light, Agfacolour Negative Film, Type G 334, Agfacolour Positive Film, Type 4 and Agfacolour Reversible Duplicating Negative Film have a separate yellow filter layer between the upper and the central layer. The Agfacolour Negative Film, Type B 333 and the Agfacolour Positive Films, Types 5 and 7, however, are based on the principle of dye stuff filtering and the special yellow filter layer has been replaced by a yellow filter dye which is embedded in the upper layer. These films are easily recognized by their yellow emulsion side which distinguishes them from the other films. The back of the film has a green anti-halation layer which disappears completely during processing.

When exposed the usual latent images will be formed on Agfacolour film without any loss of light in the same way as with black-and-white films. During processing the normal silver images will be developed, and by a following colour development in addition to the silver images, the corresponding separate complementary images will be formed in each of the three layers. The upper layer will contain the yellow image, the central layer the purple or magenta image and the lower layer the cyan (blue-green) dye image. Further processing in various baths serve to eliminate the superfluous silver and to dissolve the remaining silver halide so that only the pure dye stuff images remain, that is to say, in the Agfacolour negative process, negatives will be obtained in the complementary colours and brightness values, whilst the Agfacolour Positive Film will render positive pictures in their natural colours.

The similarity between the Agfacolour and the standard black-and-white process makes it possible to change over from black-and-white to colour and vice versa, without making fundamental changes in the taking or processing conditions and the technical equipment of the finishing plants. To make Agfacolour Negative Films or to project Agfacolour Positive Films no alterations in the commercial cine-camera or the standard cinema projector are necessary. Every normal feature-Film camera can be loaded with Agfacolour Film exactly in the same as with black-and-white film. The green anti-halation backing is sufficiently transparent to make it possible to focus in the camera, directly on the film, there being

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

no cogent need for reflex-cine-cameras. The lenses should be selected according to their colour corrective quality and only such lenses should be chosen which are as free from vignetting as possible. On the other hand the processing plants have to cope with additional work and equipment. A certain amount of increased expenditure is involved in the increased number of solutions and tanks as well as intermediate washings, the slightly more complicated procedure as compared with handling black-and-white films and the additional equipment necessary for the development of the sound track, whilst the printing department needs an additional filter strip to control the colour of printing light.

Printing the sound track on the Agfacolour Positive Film is performed by using black-and-white sound negatives. The sound track of the Agfacolour Positive Films consists of both silver and dye stuff. With Agfacolour Positive Film, Type 4, the sound track is processed by the so-called bleaching-slime process, whilst with Agfacolour Positive Films, Types 5 and 7, the method of re-development of the sound track is used

Reversal development is used with the Agfacolour Reversible Duplicating Negative Film. It consists of a black-and-white and a colour development. The whole process can be performed in one developing machine or separately first in a black-and-white processing machine and then in a colour processing machine. After processing Agfacolour Reversible Duplicating Negative Film negatives in complementary colours are obtained which can be printed on Agfacolour Positive Film to give colour copies ready for projection.

The printing material designed for Agfacolour Negative Films, Types B 333 and G 334, is the Agfacolour Positive Film, Types 4 and 5. For printing colour positives from flat colour negatives with or without mask, the Agfacolour Film, Type 7, should be used. This film has a somewhat steeper gradation as Agfacolour Positive Film, Type 4 and Type 5 and a special colour balance, which needs only very low correction filter values when masked negatives are printed. Agfacolour Positive Film, Type 7, is a three-layer film like Agfacolour Positive Film, Type 5 .

Films, Agfa Duplicating-Black-and-White: For making copies for projection in cinemas, the cine-industry seldom uses the original negatives. In almost all cases duplicate negatives are made and the copies printed from them. This interpolation of the duplicating process has various cogent reasons. First and

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

foremost the most valuable original negatives must be preserved and protected from damage. Frequently it is necessary to improve on the negatives e.g., correcting converging lines, etc., or to interpolate trick-shots. Furthermore, the densities of the various negatives are rectified and balanced in relation to each other. Very often, the original negative is not available and a duplicate negative must be made from a copy. For the duplicating process Agfa produce two ranges of films:

(1) Duplicating Positive Film, Type A, and Duplicating Negative Film, Type A. The films of this type have a very fine grain and many copying plans are using them for many years as a standard duplicating material. These films are not sensitized. The Duplicating Positive Film has a light-blue (lavender) coloured base to distinguish it from normal positive film. The base of the Duplicating Negative Film is coloured grey-blue.
(2) Duplicating Positive Film, Type C, and Duplicating Negative Film, Type C. These films have fundamentally different properties to the Type A films. They have an extremely fine grain and for this reason are of slow speed only, so that a more powerful copying light in the machine is necessary. Both films are panchromatic sensitized. The Duplicating Positive Film has a light-blue (lavender) coloured base. The base of the Duplicating Negative Film is coloured grey-blue.

Films, Agfa Negative Black-and-White: Agfa cine film production comprises the following negative films:

Format: 35 mm. and 16 mm. width.

Agfa Finopan Negative Film, panchromatic, 15 oDIN.
Agfa Superpan Negative Film, panchromatic, 18 oDIN.
Agfa Ultra rapid Negative Film, super-panchromatic 25 oDIN.
Agfa High Frequencies Motion Picture Film, super-panchromatic, 25 oDIN.

Format: 16 mm. width.

Agfa Isopan-FF Negative Film, panchromatic, 13 oDIN.

Format: 35 mm. width.

Agfa Infrarapid Film 750 for infra-red photography.

The panchromatic negative films are graded in sensitivity so as to permit the choice of a film suitable for the intended use. It is recommended that the use of a film with a sensitivity adequate to the given purpose, whilst the use of ultraspeed films should be reserved for occasions where lighting conditions make their employment imperative. It should be borne in mind that the graininess of a less sensitive film is not as notice-

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

able as that of a film with higher speed. All Agfa negative films are supercoated with a thin gelatine layer as a protection against abrasion. The base of these films, with the exception of the Agfa Isopan-FF Negative film, is dyed grey-blue, a measure serving as anti-halation preventive. Although it remains after processing, it does not interfere with copying.

The Agfa Isopan-FF Negative Film has a manganese intermediate anti-halation layer between the clear base and the emulsion. It disappears during processing. There is also an invisible anti-static layer on the back of negative films to oppose the film from being charged with static electricity.

Films, Agfa Reversible: Reversible films are films, which, after exposure, are processed by a reversal process giving a positive ready for projecion, instead of a negative.

Reversible films are frequently used for industrial and commercial photography, on exploring expeditions, for educational purposes, by libraries etc. Agfa supply the following types:

As films for use in the camera:

(1) Agfa Isopan-F Reversible Film, panchromatic, speed like a negative film of 15 oDIN (25 ASA/20 Weston/32 Gen. EL/26 degree Europ. Scheiner). A film designed for daylight exposures which can be used, however, also with artificial light.

(2) Agfa Isopan-ISS Reversible Film, panchromatic, speed like a negative film of 19 oDIN (64 ASA/50 Weston/80 Gen. EL/30 Europ Scheiner). A film designed for use with artificial light, which can also be used with daylight under poor lighting conditions.

Films, Agfa Sound Recording Negative: For sound-recording Agfa produce two types of sound negative films:

(1) Agfa Sound Recording Negative Film Tf 4, which for decades has been the standard material for sound recordings by the variable area method.

(2) Agfa Sound Recording Negative Film Tf 6, which is the result of latest scientific research. This film of good clarity has approximately three times the speed of the Tf 4 film, more vigorous contrast and gives considerably improved sound quality.

These films can be processed in any clear and hard working developer. Particularly recommended are the Agfa 20 and Agfa 22 developers.

When recording by the variable area method the density of the

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

sound track should comply with the following conditions: Higher density decreases the volume and causes distortion, lower density decreases the volume only. This applies to the recording as well as to the copy. The nonblackened half of the sound-track should be as clear as possible as loss in volume will result otherwise.

Film, Ansco Colour 35 mm. Motion Picture: Ansco Colour Film 35 mm. professional motion picture film is designated especially for use in commercial production where the characteristics of the taking or camera film are of significance only in so far as they concern the subsequent production of a satisfactory release print.

(1) Ansco Colourpak (Type 735), should be considered only as an original taking medium from which prints are to be made. It is not itself satisfactory for projection.

(2) Ansco Colourpak, Type 735, is balanced for exposure by natural or simulated daylight, and in the studio it yields excellent results with high intensity carbon arcs in combination with Yl Gelatin Filters or CP tungsten lamp filtered with Mac beth Whiterlite filters.

Film, Anso Colour-Printing Equipment: See Ansco Colour, Film-Printing Equipment.

Film, Anso Colour-Printing Equipment: See Ansco Colour, Film-in gradation and colour rendition so that the camera film is itself suitable after processing for projection. If desired, duplicates can be made from this original on Ansco Colour 16 mm. Duplicating Film.

In exposing Ansco Colour 16 mm. Motion Picture Films the general rules applicable to all colour cinematography apply.

The film is supplied in two tpyes, one balanced for use in daylight and the other balanced for either 3200 K illumination or photoflood lamps.

Films, Colour: The colour films are of the multilayer type, so that where appropriate they may be exposed in conventional cameras used for black-and-white photography. Of the colour films, one is designed for use as an original camera negative. A second is an intermediate film which can be used for making a colour master positive or a colour duplicating negative for incorporating opticals in the picture. The third is the positive film on which the final print is made.

'Eastman' Colour Negative Film Type 5248 and Colour Inter-

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

mediate Film Type 5253 incorporate an automatic colour correction feature to improve the accuracy of colour rendition.

The positive material 'Eastman' Colour Print Safety Film, Types 5382 (35 mm.) and 7382 (16 mm.), though primarily for use in making colour release prints from 'Eastman' Colour Negative, may be used as a print material with black-and-white separation negatives obtained by other means.

(1) *'Eastman' Colour Negative Safety Film Type* 5248 (35 *mm.*)

'Eastman' Colour Negative is an integral tri-pack (so-called 'Single strip') negative material that can be used in any motion picture camera. No modifications to the camera are required, but the accuracy of the camera focus should be checked carefully before it is first used for colour. Also it is desireable to ascertain that the colour correction of the lens is adequate for photography of this character.

Colour prints can be made from the negative on the companion material, 'Eastman' Colour Print Film, or by a number of other processes. Special films are available for the preparation of 'opticals' and special effects.

(2) *'Eastman' Colour Print Safety Film Type* 5382 (35 *mm.*) and 7382 (16 *mm.*)

This film is a multilayer colour film intended for use in making colour release prints from 'Eastman' Colour Negative Film, Type 5248, and from Colour Internegative Film, Type 5245. It is also useful as a colour print material when it is desired to print from black-and-white separatation negatives obtained by other means. The film consists essentially of three light sensitive emulsions, each sensitized differently, and coated on a safety support. Incorporated in the emulsion layers are dye couplers which react simultaneously during development to produce separate dye images with the silver image in each layer. The silver image is later removed by bleaching, leaving only the dye images in the picture area. The sound track area is re-developed to give both a dye and silver image for the track. Since the material is exposed through a colour negative (or from black-and-white separation negatives with coloured light), the resulting images are colour positives.

Films Colour, Densitometer for: See Densitometer for Colour Films.

Film conversion table: Between the picture and sound that corresponds to it there is a twenty frame separation on 35 mm. film, and a 26 frame separation on 16 mm. film because the

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

sound head of the projector is that distance from the light aperature through which the picture is projected on the screen.

A handy conversion table for sound motion pictures showing time periods, footage in 16 mm. and 35 mm. films, and a word count for the COMMENTARY to be used is shown here:—

Time period in seconds	16 mm. Film		35 mm. Film	
	Feet	Frames	Feet	Maximum words narration
½	0	12	¾	1
1	0	24	1½	2
2	1	8	3	4
3	1	32	4½	7
4	2	16	6	9
5	3		7½	11
6	3	24	9	13
7	4	8	10½	16
8	4	32	12	18
9	5	16	13½	20
10	6		15	22
15	9		22½	33
20	12		30	44
25	15		37½	55
30	18		45	65
35	21		52½	77
40	24		60	88
45	27		67½	99
50	30		75	110
55	33		82½	120
Time period in minutes				
1	36		90	130
1½	54		135	195
2	72		180	260
2½	90		225	325
3	108		270	390
4	144		360	520
5	180		450	650
10	360		900	1300
20	720		1800	2600
30	1080		2700	3900

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Film Director: See Director.

Films Division: The production of newsreels and shorts by the Indian News Parade and the Information Films of India ceased as a result of the Indian Legislative Assembly carrying a cut motion in the budgetary grant in 1946. The Government of India under the new dispensation were appreciative of the utility of these media for official publicity and for educational and cultural propaganda. The Films Division as a branch of the Ministry of Information and Broadcasting was set up early in 1948, with headquarters in Bombay, and the production, distribution and exhibition of short films came to be revived after an interruption of over two years. While the Information Films of India and the Indian News Parade had functioned as virtually separate and independent units, the Films Division comprises both units, the documentaries produced by them being called the Documentary Films of India and the Newsreels named Indian News Review.

The Films Division has its own distribution branch for supplying newsreels and documentaries to cinema houses in the country. Five branch offices of distribution are located at Bombay, Calcutta, Madras, Lucknow and Nagpur.

Films, Duplicating: In the production of motion pictures, duplication stages are frequently employed for various reasons. Duplication is used, for example, wherever effects such as Lap dissolves, fades, wipes, blow-ups of a portion of the original scene, etc., are to be introduced. These effects are prepared by making a master positive from the original negative, using an optical printer. A duplicate negative is then made from the master positive for use in making the release print. In general, wherever optical printing is called for, duplication is required.

(1) *'Eastman' Fine Grain Panchromatic Duplicating Negative Safety Film Types* 5203 (35 *mm.*) *and* 7203 (16 *mm.*)

A low-speed, panchromtaic duplicating negative material of extremely fine grain and high resolving power, coated on the same type of grey base used for panchromatic picture negative materials. Used as a companion to Fine Grain Duplicating Positive, Type 5365, it produces duplicate negatives equal in tone rendering and printing detail to the original negative. The panchromatic sensitivity of 5203 gives it considerably more speed than the same emulsion would have if not sensitized.

(2) *'Eastman' Fine Grain Duplicating Positive Safety Film Types* 5365 (35 *mm.*) *and* 7365 (16 *mm.*)

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

A slow, yellow-dyed master positive material of extremely low grainness and exceptionally high resolving power, intended as a companion film to Fine Grain Panchromatic Duplicating Negative Type 5203. The use of these two films together results in duplicates distinguishable from the originals only by skilled observers.

Film Exposing: In the camera the film is stored in light-tight boxes, from which it is drawn by means of a sprocket or toothed wheel which engages in the film perforations. It then moves intermittently past the camera "GATE", or the point where the image formed by the lens is focussed upon the sensitive surface. The image is recorded while the film is stationary, and it only moves down when a revolving-disc shutter, which is linked to the transit mechanism, momentarily obscures the lens. After exposure the film is wound into a second light-tight box.

Film Formula: Emotion plus suspense is the film formula.

Films for Children: See Children's Films.

Films, Gevaert Cine: See (1) Gevaert Cine Films, (2) Gevacolour Process, (3) Gevasonor.

Film Making: The first step in the making of a film is the securing of a suitable story. These stories are very often taken from published works. Occasionally writers employed in the studios are commissioned to wite a story around a theme which is considered likely to be of interest to the public, whether because of the general applicability of the time or its topical interest. The producer entrusts the story to specialist writers of scenarios who analyse the theme and incidents and arrange them into a number of sequences. When the draft script is ready, the producer chooses a suitable director for taking charge of the picture. The director is ultimately responsible for deciding how the ideas embodied in the shooting script are to be translated into pictures. He, therefore, has to work in close consultation with the writer of the story so that the rendering might be sympathetic.

Budgeting: When a draft has emerged which satisfies all the three, the writer, the producer and the director, it is sent on to the Production Office, where the man power and materials required are estimated. For this purpose, the script is then broken down into various elements in order to enable the head of each department in the studio to know what he has to contribute. For instance, the erection of sets would concern not merely the Art department but also the workshop and the pro-

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

perty and electrical departments. With the estimates prepared by each of these sections, the budget is prepared, which is again discussed and revised if the original figures cannot be met .

Discussion with technicians and artists: During this stage of preparation, which usually takes some months, the director had to work in consultation both with the art-director and the cameraman. These discussions are sometimes followed by the making of sketches, and sometimes of small models of the sets so that every one would have a clear idea of what has to be done. The story is also discussed with Music Department, and in the case of a "musical", song-writers are engaged. When the script has been prepared in the final draft to everyone's satisfaction, the picture is ready to go on the floor.

The Shooting Schedule: Since it is not always convenient or economical to shoot the scenes in the particular order in which they appear in the story, a separate shooting schedule is prepared in which the scenes are regrouped so that those requiring the same set or location or in which the same group of actors participate, can be shot together.

Film-making Methods: See Methods of Making Films.

Films, Objectionable: See Objectionable Films.

Films, Physical Properties of Agfa-Black and White and Colour.

Film Base: Until recently the base of 35 mm. films consisted of cellulose nitrate, which is highly inflammable. Previously, the law only required the base for films smaller than 35 mm. to be of safety material. Now, however, a SAFETY FILM base has replaced the nitrate base for films of 35 mm. width. With SAFETY BASE the danger of inflammability is not greater than with a volume of newsprint of equal size and quantity.

Agfa safety films are distinctly marked by latent image printing on the edge of the film or the bars between perforations. Furthermore, the back of the safety films base is dyed a weak blue so that it can easily be distinguished from nitrate film by its general appearance, when the reel is held up against the light.

The Plane Position of the Film: The emulsion layer of films consists mainly of gelatine. Gelatine has the property of adapting itself to the humidity of the surrounding air by either absorbing or emitting moisture. In both cases, a change takes place in the volume of the gelatine.

When absorbing moisture, the gelatine expands (or swells).

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

When emitting moisture, it contracts (or shrinks).

This property of the gelatine has its effect on the flatness of the film since the actual film base is hardly affected by changes in humidity. If the air is too dry, the film curls with the emulsion inside, in humid air it buckles with the emulsion side towards the outside. By appropriate treatment of the film base during manufacture, the tendency of the film to curl can be lessened, although not absolutely eliminated. It is important, therefore, that the air used for drying in processing machines should always contain a certain amount of moisture. A maximum air temperature of 30°C (86°F) and a relative humidity of 40-60% is generally considered to be most suitable. During the cold winter months, there is a real danger that the air used for drying will not contain enough moisture. If, for instance, a volume of cold air of —10°C (14°F) is drawn in and heated to 25°C (77°F), this air will have a relative humidity of only 10%. In air as dry as this the film will come out of the machine with a strong emulsion-inward curl, which will cause it to wind up "polygonally" (the phenomenon known as "SPOKING"). In such cases it is advisable to moisten the air before it enters the drying cabinet.

Perforation Pitch: All cine films have a perforation pitch of 4.75 mm. Films for wide-screen projection (CinemaScope, etc.) also have a perforation pitch of 4.75 mm.

Anti-Halation Backing: During exposure, part of the light reaching the emulsion layer of the film is absorbed and usefully employed by the light-sensitive silver halide crystals contained in the emulsion to form the picture. A small amount of light is reflected by the silver bromide crystals dispersed within the emulsion and can thus create the effect known as "HALATION" by "irradiation". The rest of the incident light penetrates the emulsion layer and strikes the film base which permits some of the light to pass through without having any effect, but reflects back into the emulsion, where it may result in the effect known as halation by reflection. As a precaution against all types of halation, appropriate preventive methods are employed in the manufacture of Agfa films.

The black-and-white Agfa negative cine films, with the exception of the 16 mm. Isopan-FF Negative Film, have a base dyed grey-blue. This dye acts as a protection against halation and remains after development. It does not interfere with printing and its weakening effect on the printing light is negligible.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

The 16 mm. Isopan-FF Negative Film has a manganese layer between the base and the emulsion which acts as an anti-halo safeguard. This intermediate layer discolours during processing.

The base of Duplicating Negative Films is dyed grey-blue in the same way as those of the cine negative films. Duplicating Positive Films have blue-dyed base. Moreover, Duplicating Negative Films Type A, Duplicating Positive Films Type C and Duplicating Film Type C have an additional yellow anti-halo-pigment to avoid halation by irradiation in the emulsion.

Reversible films have an intermediate brown layer between emulsion processing the colloidal silver is not removed from the intermediate layer.

Agfacolour Negative-Positive Film has a green-anti-halation backing, which disappears during processing.

Films, Picture Negative: For picture negative use, two black-and white materials are provided which are designed to fill every need that may arise in exterior or interior photography. These films are panchromatic with a balanced colour sensitivity which enables them to produce good total gradation throughout the full range of colours. They are coated on a grey anti-halation safety base which contains a special anti-abrasion backing to provide greater freedom from cinch marks and to give longer printing life.

(1) *'Eastman' Plus-X Panchromatic Negative Film (Type B), Types* 4231 (35 *mm.) and* 7231 *B* (16 *mm.*).

A high speed, fine-grain negative material, well suited to general interior photography and to exterior photography under average lighting conditions.

(2) *Eastman 'Tri-X' Panchromatic Negative Film Types* 5233 (35 *mm.*) *and* 7233 (16 *mm.*).

An extremely high-speed negative material of medium grainness. It is particularly suitable for newsreel work and for exterior and interior photography under adverse lighting conditions. It is also useful where it is desired to obtain great depth of field without an increase in illumination.

Films, Positive: For all general black-and-white release printing, 'Eastman' Fine Grain Release Positive Film, Types 5302 and 7302. Its low granularity, high resolving power and excellent sharpness characteristics make it ideally suited for the production of prints for both picture and sound track. It may be used when printing from either original picture and sound nega-

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

tive or from either original picture and sound negative or from the fine-grain duplicating materials previously described.

'Eastman' Fine Grain Release Positive Safety Film. Types 5302 (35 *mm.*) *and* 7302 (16 *mm.*)

An extremely fine grain material suitable for general release printing. Because of its fine grain, high resolving power, and image sharpness, it produces prints of excellent definition and general quality, particularly when used in conjunction with the fine grain 'Eastman' duplicating materials. This film is also useful for making negative or positive titles, dubbing prints for sound, for making kinescope recordings from negative television tube images, and for other purposes. When it is used for release positive printing, a considerabe improvement in sound reproduction is obtainable, as compared with that obtained with older type films.

Film Printer: Printers intended for large quantities of work are of the contact type, but for special work optical printers are used. These are similar in principle to an enlarger or projection printer, the two films being separated, with a lens system between, the two films moving in opposite directions. The projection printer is used to introduce "effects" such as fading, wipes, and multiple exposures from normal negatives which have been obtained in the camera. A duplicate negative is prepared from the original "master positive" thus obtained, and from this further "soft" positives, which in their turn yield the negatives which are used for making the large quantities of prints which are actually used in the cinemas.

The positive prints are developed in continuous processing plants as in the case of negatives. (See Film Printing).

Film Printing: A roll of finished negative and the roll of unexposed positive film are loaded into a machine, and pass together past a printing point behind which a light is situated. The light can be controlled in intensity to compensate for differences in negative density. There are two kinds of prinetr: (a) the intermittent, in which the negative and positive, in close contact, pause in the printing gate while the exposure is made, and (b) the continuous type of printer where the pair of films runs smoothly past a printing slit.

Film Processing: Negative film is generally "processed" in a mechanism by means of which it is caused to flow continuously through a series of tanks containing the necessary solutions for developing, fixing, and washing, and then it proceeds to a drying chamber.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Film Projecting: The picture projector is similar in principle to the camera, except that the film is moved past the picture aperture by means of an intermittent sprocket or "MALTESE CROSS" movement, instead of a claw mechanism. Illumination is provided by a light of high intensity used in conjunction with a condenser, but only the picture portion is projected on to the cine screen.

Film Punctuations:

(1) *By direct cut.* One shot immediately succeeds the next. Impressions: speed. If well done, clean, efficient continuity. If badly done, slight serious visual shock, and sense of restlessness and jerky continuity.

(2) *By fade-in and fade-out.* The gradual emergence of a shot from a black frame, and its opposite.

(3) *By dissolve.* The gradual change from one scene to another by superimposition of the images, the end of the first shot being carefully timed in relation to the emergence of the next.

(4) *By wipe.* The effect of a wipe has been described as if an invisible roller were passed over the screen horizontally or vertically, wiping out one picture and revealing the next.

(5) *By continuity title.* Words cease on the sound track and either silence or music ensues.

(6) *By other camera devices.* Not involving a cut, dissolve or fade.

Films, Purpose of: See Purpose of Films.

Films, Relative Sizes of: 35 mm. films has 16 pictures to the foot. 16 mm. films is two-fifths the size of 35 mm., and has 40 pictures per foot. At the rate of 16 pictures per second, 100 ft. last for four minutes and ten seconds on the screen, 9.5 mm. film has roughly one picture more every three feet of film, and lasts for practically the same time on the screen.

8 mm. has 80 pictures per running foot, and therefore lasts twice as long on the screen. A given length of double-width 8 mm. has four times as many pictures on it as a corresponding length of 16 mm. film.

Film Resolution (Sound): See Sound ultraviolet Recording.

Film Shot: Film shot is the cinematic way of stating movement. It is also a way of camera to handle movement. For Shots, see Camera Positions.

Films, Sound Recording: The two methods of sound recording

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

in general use, variable density and variable area, require quite different film contrast characteristics. For variable density recording, a long scale at low contrast is necessary to ensure distortion-free reproduction. For variable area recording, on the other hand, a much higher contrast is desirable so that the exposed area will develop to a high density while the unexposed area remains clear; the boundary between the two must be as sharp as possible.

(1) *'Eastman' Sound Recording Safety Film: Types* 5398 (35 *mm.*) *and* 7398 (16 *mm.*)

A film having high photographic speed; it provides maximum speed consistent with other requirements for variable-area recording. In this connection it may be used either with white light or ultra-violet exposure.

(2) *'Eastman' Fine Grain Sound Recording Safety Film: Types* 5372 (35 *mm.*) *and* 7372 (16 *mm.*)

A sound recording material especially designed for use with variable area sound recording equipment. Its fine grain, high resolving power and image sharpness permit recording over a wide frequency range.

Films, Storage of Cine: In the same way as any other stored sensitized material, cine films are also subject to changes in their physical and photographic properties. It is therefore essential to create storage conditions which will ensure that these changes are kept to a minimum, in order to maintain uniform results in processing.

Although cine films are at present only made on safety base, when choosing or constructing a film store it must be remembered that old films or nitrate base or spools with pliced-in replacement on nitrate base, will continue to be encountered for years. As long as it is possible that there are part or entire spools on nitrate base in the store, the great danger of easy inflammability inherent in nitrate film will endanger the entire store. In almost every country in the world, the storage of nitrate films is governed by stringent safety regulations which must be adhered to strictly concerning the equipment and maintenance of such storage place. Premises housing such stores should be constructed of fire-proof material and fire extinguishers and air-conditioning plant must be provided. The air-conditioning plant must be installed in such a way that the highly poisonous gases, generated by burning nitrate film, can be diverted to the outside air thus preventing them penetrating

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

into other parts of the building. Besides adequate fire-prevention care must also be taken to avoid damage by water.

Safety films are clearly distinguishable by latent image printing on the margin and so long as there are nitrate films amongst them, the fire danger of safety films is no greater than with the same amount of newspaper stored in a similar way. (See Films, storage of Raw.)

Films, Storage of, Raw: The dangerous inflammability of nitrate film has already been mentioned above, and since nowadays and in the future most films will be on safety bases, it would be an advantage to establish two different stores for raw films, one for safety film and one for nitrate film. Since the stringent regulations for storing the latter make building rather expensive such a division would at least restrict the nitrate film store to a much smaller scale. Of course, it should not be possible for nitrate film to get mixed up with safety film. The labels on the cans always state whether the film inside is safety or nitrate film, but this only applies to unopened cans in their original packing.

In order to retain the properties of sensitized photographic materials, the following precautions should be noted.

Heat and, to an even degree, humidity, greatly accelerate fogging, changes in sensitivity and loss of contrast. Excessive humidity may also cause deteriorations, such as drying marks and actual physical disintegration. In the case of colour film the sensitivity of each individual emulsion layer may be affected to different degrees, causing serious changes in colour balanced. Storage premises should be designed to permit constant air conditions to be maintained throughout. Storage shelves should never be near any sources of heat and should never be exposed to sunlight. The space between shelves should not be larger than is necessary for ten cine film cans to be stacked one on top of another.

Special attention should be paid to ensure that the store is free from harmful gases such as acetylene, carbondioxide, coal gas, hydrogen sulphide, sulphur dioxide, vapours from turpentine, fresh paint, sewers, etc.

For satisfactory climatic conditions recommended temperature is 18° C (65°F) and a relative humidity of the air up to 70% for storage up to a maximum of six months. Since it will be difficult to keep the humidity constant at this level, it is even more important to keep the temperature constant. If this can

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

be achieved, the humidity in the store is not of such great importance for films stored in their unopened, original cans. Excessive humidity could then only result in the labels peeling off from the oxidizing cans. If, however, the temperature in the store varies frequently, the tins will start "breathing", which means that with any change of temperature the cans pump air either in or out, which, in a very humid store, may lead to a serious deterioration of the films.

In cases where negative, sound or colour films are stored for longer than approximaely six months, the temperature in the store should be maintained as closely as possible to 10°C (50°F). Black-and-white Positive films can be stored at 18°C (65°F) for longer than six months.

If cine films have to be stored at temperatures exceeding 20°C (68°F), they should be used up as quickly as possible since their keeping power is reduced when the temperature rises.

As soon as films arrive at the store they should be taken from the crates and stacked flat (not upright) on the shelves in their original unopened condition. It frequently happens that the crates get wet in transit; it is extremely detrimental for film to remain longer than absolutely necessary in wet crates. This warning should be stressed particularly, since it may not be noticed at the time that the crates are actually wet.

Cool-stored films required for use in warmer rooms should be removed from storage in their sealed condition at least several hours before they are required (preferably on the evening before) so that they can slowly come up to the higher temperature. The condensation which could otherwise form on the film when the cans are opened would make the film sticky or lead to to the formation of mottled spots.

Store keepers should take care that films with the lowest emulsion number are always used first so that excessive ageing of films in stock is avoided. (See Storage of Films prior to Exposure).

Film-Strip: The word film-strip refers to still pictures printed in sequence on a strip film. The film-strip proides the simplest, most direct, and least expensive mass medium of communication yet invented. The film-strip came into being shortly before 1920 when Underwoods of New York conceived the idea of putting their large photographic library on 55 mm. film. Later 35 mm. film was found more desirable and became the standard width for the film strip. The single-frame film strip is run through the projector vertically.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Film strips suitable for production are made either with or without accompanying recordings. Combination film-strip projectors and record player required for the sound film-strip are specifically designed. Film-strip is made from the still photographs. Generally a film-strip may contain 16 to 30 frames, each from having different picture or a title and at times it may be 2 to 5 feet in length.

Film, Sub-Standard: There are three sizes of sub-standard motion picture film in general use today, the respective film widths being 16 mm., 9.5 mm. and 8 mm. The most important of these three types, in the sense that it is the most widely used, is the 16 mm. size.

The 16 mm. film was introduced in 1923 by the Eastman Kotak Co. for the purpose of encouraging the making of "home movies" by the amateur.

Motion pictures in colour on 16 mm. made an early appearance with the introduction in 1928 of Kodacolor film.

Kodacolor was eventually discontinued after the introduction of Kodachrome, a subtractive process which does not require any additions or modifications to the camera or projector.

Technicolor Ltd. have been making 16 mm. colour prints from 35 mm.

Concurrently with the increased use of 16-mm. film came various ancilliay equipments, such as rewinders, splicing and editing outfits, title boards and so forth.

The making of 16-mm. prints from 35-mm. negatives has been, a well-established practice for a number of years. The entry of sound into the 35-mm. field quite naturally led in the course to the availability of sound in 16-mm. form.

Consequently, in 1931 there appeared the now familiar 16-mm. sound reduction print, in which both sound and picture were on the same film. In order to accommodate the sound track it was necessary to omit the perforations from one side of the film, while to match the increase in film speed of 35-mm. sound film, the 16-mm. film speed was also raised to twenty-four frames per second. In reducing the sound track the longitudinal reduction is greater than the lateral reduction, so that although of necessity the length of the sound track is reduced by sixty per cent., the decrease in width is only fifteen per cent.

In 1939, two methods were in use for transferring the 35-mm. sound track to 16-mm. film, namely, electrical re-recording and

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

optical reduction, but the great majority of 16-mm. sound prints were made by optical reduction.

Film Tricks: See under Ciematography, History of.

Film Viewer: The film viewer is a useful aid to editing. The film is drawn through the machine and a magnified picture appears on a ground glass screen.

Film, Wide: See Wide Film.

Filter: (1) This changes the tone characteristics by means of an electrical device called a filter .

(2) Glass or gelatine used in front of camera lens to correct light values for the best photography.

Filters CTO, Table of:

Nature of illumination	Colour Temperature in O.K.	Filter	Exposure Factor: Fractions of lens stop.
Incandescent Studio Lamps.	2800		
Studio spot lamps or overrun lamps (100 hr.)	3200		
Overrun lamps (2 hrs.)	3400		
In the Sun-light 1-2 hrs. after sunrise and before sunset.	5000	CTO-8	+1/3
Sunlight and blue sky.	6000	CTO-12	+1/2
In the shade, 1-2 hrs. after sunrise and before sunset.	6000	CTO-12	+1/2
Overcast sky.	7000	CTO-12	+1/2
Shade under the sky.	10000 to 12000	CTO-20 CTO-12	+3/4
Arc lamps	5500	CTO-12	+1/2

Filters, Gevacolour: See Gevacolour Filters.

Filter mike: Device used in sound recording to achieve unusual effects.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Filters, Kinds of:

	SCREEN
(1) Aero 1 Light Yellow	Slight colour correction for all types of panchromatic films. Produces slight contrast. Penetrates light haze. Helps to snap up faces with very little added exposure.
(2) Aero 2 Yellow	Normal colour correction for all types of panchromatic films; produces medium contrast; darkens blue sky; brings out clouds; greater haze penetration than AERO 1; most popular filter for general exterior photography; absorbs ulraviolet, and some blue.
(3) 12 Minus Blue Yellow	For slightly stronger effect than AERO 2; useful for the elimination of haze in aerial cinematography, colour correction between AERO 2 and 15G.
(4) 15G Deep Yellow	Full colour correction for all types of panchromatic films; produces greater contrast than No. 12 and AERO 2; used more for open landscape; darkens blue sky bringing out clouds; penetrates distance haze; for use with long focus lenses; lightens all yellows, reds and orange.
(5) No. 21 Orange	Light over correction for all types of panchromatic films; produces more contrast than the G filter; strong clouds effects; lightens normal panchromatic make-up; good for mountain and aerial work; penetrates distance haze with long focus lenses.
(6) 23A Orange Red	Medium over correcitn for all types of panchromatic films; darkens blue sky and water for light night effects in sunlight; lightens normal panchromatic make-up; produces more contrast than No. 21 filter; darkens

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

greens slighly; lightens all yellow, orange, and red colours.

(7) 25A Red — Great over correction on panchromatic film; action same as 23A but more pronounced; produces very strong contrast; penetrates aerial haze; creates dramatic and spectacular night effects; standard tri-colour red filter for three colour separation negative; normally used for infra-red films; special make-up required if faces are photographed.

(8) 29F Deep Red — Extreme over correction and extreme contrast; full night effects in strong sunlight; turns the blue sky and water to strong black; necessitates very special face make-up, turns all yellow orange, red colours as white; used with Infra-red films; this filter is also useful with the C4 (No. 49) and the N (No. 61) in making separation negatives from Kodachrome originals.

(9) 35D Magenta — A contrast filter which is moderately stable; transmitting both red and blue; darkens green and orange; lightens violet and red; used singly or in pairs for scientific research and for photomicrography.

(10) 47 C5 Blue — Generally used with orthochromatic films to increase blue contrast; makes blue sky lighter and any emulsion colour blind; also used at tri-colour blue for colour separation negatives on Kodachrome or other three colour work.

(11) 49 C4 Dark Blue — Experimental tri-colour filter; generally used as a viewing filter for arc and daylight illumination; increases blue contrast on all orthochromatic films; also used for colour separation negatives from Kodachrome and other colour transparencies.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

(12) X1 Light Green	Has slight softening effect and good correction for all types of panchromatic films; can also be used with Ortho films; renders green and yellow slightly lighter, red and blue, slightly darker; no make-up change necessary.
(13) X2 Green	Has medium softening effect and good correction on all types of panchromatic films; slightly stronger green contrast than X1, darkens reds and blues more.
(14) 56B3 Green	Strong softening effect on all types of panchromatic films produces green and yellow contrast; same action as X1 and X2 but with considerable stronger effect; in combination with 23A is used for soft night effects in sunlight.
(15) 58 B2 Dark Green	Slightly stronger than B3; used for more contrast; records green and yellow as light; other colours as dark; also used as tri-colour green for camera three colour separation work.
(16) 3 N 5 Yellow Green	Combination of AERO 1 and 50% Nautral Density; light colour correction; generally used for open landscape, street scenes, desert and snow scenes.
(17) 5 N 5 Yellow Green	Combination of AERO 2 and 50% Neutral Density; normal colour correction; used for snow scenes and strong contrast; gives pleasing value on open water shops.
(18) 70 Deep Red	Extreme over correction and extreme contrast in all the blue and green colours; used generally for haze cutting in aerial work and heavy night effects in strong sunlight; requires special make-up; also used with Infrared film.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

(19) 72 Brown Red	Extreme over correction and extreme contrast in all blue values; turns blue sky and water to jet black; can be used for long distance haze cutting in aerial work; for extreme night effects in strong sunlight; requires slight change in make-up if faces are shown.
(20) 88A Very Deep Red	Cut out all visible colours but transmits Infra-red rays; can only be used with Infra-red films; used in aerial work requiring very strong sun light, cannot be used with any other type of films.
(21) 90 Deep Yellow	A monochromatic viewing filter showing relative colour values and their photographic densities; designed primarily for visual use to reduce colour differences to the monotone; also used as a guide to determine relative density of trungsten illumination on subject.
(22) 25% ND Neutral	Light contrast neutralizer; soften light glare and contrast; light exposure compensator; has no corrective colour value.
(23) 50% ND Neutral	Medium contrast neutralizer; medium softening of glare and contrast; medium exposure compensator; may be used with all types of film and in combination with any filter.
(24) 75% ND Neutral	Strong contrast neutralizer; same action as 50% ND but greater degree of softening effect.
(25) 100% ND Neutral	Extreme contrast neutralizer; same actions as 75% ND but with greater degree of softening effect.
(26) 200% ND Neutral	Extreme contrast neutralizer; same action as 100% ND but with still greater degree of softening effect; requires very strong sunlight.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

(27) POLA — For controlling strong glare and brightness of sky and water; harshly lit and contrasty subjects; dissolving reflections through glass and water without changing the colour density; a blue sky can be darkened to about the same extent as an A filter; may be used in combination with any filter; the maximum results are obtained with the sun's rays at 90 degrees angle to the camera; two POLA SCREENS together form a variable neutral density filter, the variable range being up to 32% transmission.

Filters, Agfa Films with:—

Agfa Filter No. 0 (yellow, very light)
Agfa Filter No. 1 (yellow, light)
Agfa Filter No. 2 (yellow, medium)
Agfa Filter No. 3 (deep yellow)
Agfa Filter No. 4 (very deep yellow)
Agfa Filter No. 5 (extremely deep yellow)
Agfa Filter No. 70 (light Green) — giving correct tone values on panchromatic emulsions in photoflood light.
Agfa Filter No. 72 (light green) — giving correct tone values on panchromatic emulsions in daylight.

Effect Filters for cinematographic exposures on infra-red-sensitive Agfa Films:

Agfa Filter No. 82 (deep red)
Agfa Filter No. 81 (red)
Agfa Filter No. 82 (deep red)

The filter factors are figures by which the time of exposure (without filter) should be multiplied when a filter is used.

As a matter of fact, the actual exposure time can hardly ever be changed in a cine-camera, since the frequency of frames must not be altered. Furthermore the shutter is frequently used with a fully opened sector.

To obtain night-effects in bright sunshine No. 42 is a suitable filter when the film is exposed at f/8 with fully open sector and normal camera speed.

Filters For Black-and-White Photography: In black-and-white motion picture photography, filters are employed chiefly when panchromatic negative films are exposed under daylight condi-

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

tions. Whereas, for interior work they are usually not necessary or even desirable. The use of filters in exterior work is for the purpose of securing well defined clouds, lowering the brightness of blue sky or water, penetrating haze in scenes showing distant landscapes, increasing tonal contrast between coloured objects which would otherwise photograph with low contrast, and for the production of special effects (such as night effects by sunlight illumination).

Filters "Wratten."

(1) "Wratten" No. 3 is a light yellow filter with a factor of 1.5 for daylight illumination for 'Plus-X', and 'Tri-X' and 'Background-X' films. It is used when a small amount of correction is desirable and is of particular value in obtaining a just detectable darkening of the sky area in the positive or print. It produces no effect upon normal panchromatic make-up.

(2) "Wratten" No. 5 is a slightly deeper yellow filter with a factor of 2.0 for the three films and is quite adequate for general exterior photography. Like the Aero 1 it produces no effect upon normal panchromatic make-up. Owing to its blue-violet absorption it produces in landscape photography a noticeable darker sky in the positive or print and enhances the general picture quality by increasing the contrast between cloud and blue sky area. In seascapes the water is only slightly darkened in the positive or print. It is used when a correction greater than Aero 1 is desired and when a noticeable increase in contrast between blue sky area and clouds is desired.

(3) 3 Plus N.D.O. 5 and 5 Plus N.D.O. 5: These two filters are respectively the Aero 1 and Aero 2 combined with the neutral density filter dyes of 0.50 density. These filters were dvised primarily to enable the cameraman to get the correction of the Aero 1 or Aero 2 filters and at the same time permit operating the camera at greater diaphragm openings or stops, or in practical terms, using the lens relatively wide open. These filters are often used, for example, when it is desirable to have the foreground or object of interest in sharp focus and the background of material of least interest in soft focus.

(4) "Wratten" No. 15 is a deep yellow-orange filter with a factor of 3 for all films. This filter is used when more pronounced effects or contrasts are desirable than can be obtained with either the Aero 1 or Aero 2. It is considered one of the most satisfactory filters for landscape and seascape work.

(5) "Wratten" No. 25, a medium-red filter with a factor of 7 is

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

used in exterior photography when a contrast effect is desired, that is more pronounced than that obtained with the 23A filter.

In landscape photography it generally produces a positive or print with more darkened blue sky area and a slightly lightened foreground; and in Seascape photography both the sky and water are darkened to a marked extent.

(6) "Wratten" No. 29: a deep-red filter with a factor of 15. This filter is used only when a very high contrast effect in exterior photography is desired. It produces a very dark sky and lightens the foreground.

(7) "Wratten" 72B: a dark, deep-red filter used to produce night effects in daylight. The best results are obtained when this filter is used at the full aperture of the lens, that is, f2.3 to f3.5. With full exposure in bright sunlight with this filter and with normal development a thin negative is produced which will give a positive or print having a more natural night effect than is obtained by using one of the neutral density filters or by under-exposure without a filter.

(8) N.D.O. 3, N.D.O.6 and N.D.O.9: are neutral-density filters having respectively factors of 2.0, 4.0 and 8.0 for all films. These neutral-tint filters permit the reduction of light intensity in a known and definite manner without substantially affecting its spectral quality.

Filter Factors:

Since a filter absorbs part of the light which would otherwise go towards exposing the film, its use involves an increase in exposure corresponding to the proportion of the effective light absorbed. The number of times the exposure must be increased is known as the filter factor.

Filters for Colour Photography:

The filters commonly used in black-and-white photography cannot be used in the exposure of colour films. If one of these filters is used, the pictures will show an over-all cast of the same colour as the filter.

In exposing colour films in the camera and in making colour prints and duplicates, there are a number of conditions under which good colour rendering can be secured only by the use of correcting filters.

Finder: Lens system used for viewing, during photography, what field of action is being put on the film.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Fine grain: Special film stock most nearly transparent and with least grain. Sometimes called "lavenders".

Fine-Grain Films (Sound): See Sound Ultraviolet Recording.

Fixed focus: A lens setting wherein the entire depth of field is in satisfactory focus, and no particular point sharp in contrast to another.

Fixing Bath: After emerging from the developing tank the film enters a fixing solution which clears the unexposed and undeveloped areas of the emulsion. In this process silver passes into solution in the "fixer" and as its concentration increases, slows down the rate of "clearing". Film only carrying a sound track record will exhaust the fixer very much more quickly than film carrying a picture record, since, in the first case, almost all the emulsion will need to be dissolved into the fixer.

Flag: See Gobo.

Flames: Flaming building are generally real when shot on exterior or model shot back-projected behind the characters, but it is often necessary to bring an actor in through such a thing as a flaming door. In this case, lycopodium pots are used. These pots, filled with lycopodium, have tubes fitted to them and a wick burning in the centre; the property men control them so that by letting air through the tubes the lycopodium is blown up and ignited by the wick.

Flash back: (1) Related to the question of linking scenes together is the flash back. This is the term used for common device of telling a part or the whole of a story in retrospect.

D. W. Griffith first used this system of story telling, and met opposition from his own bosses. But he went ahead and took no notice of any opposition.

(2) Screenplay technique whereby past action is introduced into current action to show how or why reactions are taken place.

Flat lighting: Most often used in TV, seldom used in filming. To light sets and performers with overall brilliance, not providing for high lighting.

Flow-Meter: This is an instrument placed in the path of a replenisher solution being fed either by means of a pump or by gravity, from a storage tank to the machine tanks. This meter gives direct reading as to the quantity of solution passing at any given time.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

FM: Frequency modulation.

Focus: Point at which rays of light, heat, sound, etc. meet after being reflected or refracted.

Focal Distance: The distance between the optical centre of a lens or mirror and the point where the rays converge.

Focussing: The operation of so setting the camera or lens as to ensure sharpness in the image of those parts of the subject required to be sharply rendered.

Fog, how to make: The best fog is made by putting a couple of white smoke bombs into a wooden box with a heavy lid and two handles and just before the take the lid is opened and the box is carried in and out across the set, and the smoke is broken up by switching on an electric fan for a second or two. When this is back-lighted it gives a magnificent effect. Fog effect can be also created by spraying Nugol by two or three powerful spray-guns placed round the set.

Follow shot: When camera follows the characters from behind, it is called a follow shot.

Footage: Quantity of film measured in feet. Length of film of motion picture.

Foreground: That part of the subject nearest the spectator.

Founders of Indian Film Industry: See under Indian Motion Picture, History of.

Frame: A single picture in the series printed on a length of film. Also used to describe the rectangular shape which bounds the viewfield of the camera and hence the picture on the screen.

Freek Shot: Placing a camera so low to the ground that people, horses, or trains seem to pass over it, or placing it so high above the head of the character so that the camera appears to shoot down upon them, as in top shot.

Freez frame: A scene held stationary on screen for a period of time. Technique used in slide motion films.

Friese Greene: William Friese-Greene is the first man who inventted moving picture camera. He was the father of moving picture, but died in utter poverty in 1921. (see Moving picture camera).

Foggy: Misty or dull; smoky.

Fog making: The fog maker or the fog generating unit is power-

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

ed by a small jet pulse engine that uses gasoline for fuel. The units fuel tank capacity is sufficient for about 1½ hours of continuous operation. To create fog, mist, smoke or any similar effect, a supply valve is opened that allows the fog-producing compound (fog-juice) to flow to the generator. The pulse-jet engine is started and a momitoring valve convenient to the operator is adjusted by vernier control to regulate the flow of fog-juice through the generator. In this way fog of varying densities can be produced to suit the requirements of a scene.

Full animation: Term used to denote movement of everything in picture, frame by frame, in cartoon subjects. Most costly of all animation methods.

G

Gaffer: Term used for an electrician. His chief assistant is called a best boy.

Gag: Any laugh producing line or situation.

Gain: An increase in volume secured by operating the controls on the minitor panel or sound table.

Garutso-Plastorama-Films: This is a new kind of photographic technique developed by the American domiciled Russian Scientists Garutso. A special attachment to the normal photographic lens when added, it is claimed, gives an unusual depth of focus, without stopping down the lens. With this Garutso lens, a depth of focus ranging from 27 inches to infinity can be obtained which is not possible with the standard lens. The Garutso films are photographed on standard 35 mm. and with the proper aperture plates can be projected to any aspect ratio. Recommended aspect ratio is 1 : 1.85.

Gate: (1) An essential part of the modern projector was evolved February 1895 by Robert Paul, a Scientific instrment-maker, who had his offices in Hatton Garden. (See Theatrograph).
(2) The spot in camera where the film reaches the aperature through which it will be exposed.

George Eastman: The inventor of the roll film and many other photographic accessories. He made a huge fortune, but shot himself on 14th March, 1932.

Gevacolour Filters: The usual practice is to use a conversion filter on the front of the lens. However, when using incandes-

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

cent lamps and arc-lamps at the same times, compensation filters must be placed over the arc-lamps. Such filters are supplied under the name "Gevacolour CT" filters, i.e., colour temperature filters. There are CTB (blue) filters raising colour temperature and CTO (Orange) filters lowering colour temperature. (See Filters CTO, Table of).

Gevacolour Process: The Gevacolour Negative-Positive process can be classified as a subtractive colour process with multilayer materials.

The primary colours, red, green and blue of the subject are registered as partial images in three separate light sensitive layers. Each of these three light sensitive layers contains an appropriate colour-coupler, which due to its chemical structure, possesses the peculiar quality that it cannot bleed from one layer to another .

The development of both negative and positive material is carried out in bath containing diethyl paraphenylene diamine.

The developer attacks the exposed Silver Lacoid crystals, converts them to silver and thereby becomes a reaction product which technicians call "Oxidization products". These "Oxidization products" of diethyl paraphenylene diamine react jointly with the colour-couplers to form the dyes.

At different densities of the silver image correspondingly proportional quantities of oxidization products and dyes will be produced. The nature of the dye depends on the composition of the coupler incorporated in each of the three layers of the colour film. Because of their different sensitivities each of the three layers will act independently. The final result is that the positive material and the negative, each consists of three images, super-imposed but separate.

The choice of the absorption characteristics of the dyes which are formed in the course of the development in the separate layers depends on the sensitivity to colour of the particular layers.

Briefly a developed Gevacolour negative or positive may be considered as a pack of three negatives or positives, which although they are bound together—remain in principle independent the one from the other.

For this process two films are used: Gevacolour Negative Type 652 and Gevacolour Positive-Type 952.

The time of processing is around 50 minutes (apart from the drying). The speed of an existing machine should therefore be

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

so reduced that the film remains in the different baths for the lengths of time required.

Gevaert Cine Films: All 35 mm. Gevaert Cine films carry between the perforations the mark S GEVAERT BELGIUM S, followed by a three figure number indicating the perforating machine number. The opposite rebate carries the number of the reel (1—31).

The majority of Gevaert 35 mm. cine films also have on the rebate of the film, the footage in feet (six figures) proceeded by a different letter of identification for each type of film. Certain films are also edge-marked with frame lines.

Gevacolour Negative Type 652 and Gevacolour Positive Type 952 bear the emulsion number (six figures) between perforations. For other type of 35 mm. cine films the emulsion number and serial number are perforated at the end of each roll.

Gevaert Negative Cine Films: By judicious selection of Gevaert for every type of lighting in all working conditions. The best emulsion for production work is "Gevapan 30 Type 164". Newsreels, for which lighting conditions are habitually variable, renegative emulsions the best possible pictures can be obtained quire "Gavapan" 33 Type 183, or the Ultra-Fast "Gevapan 36" Type 191. The latter, likewise, is the emulsion recommended for dull conditions. Should negatives be desired with the grain reduced to the finest extreme, "Gevapan 27 Type 152" is to be preferred.

G. Duplicating Cine Films: Thereare three Gevaert Duplicating Cine Films: (1) Duplicating positive fine grain—Type 362, (2) Duplicating negative fine grain panchro—Type 463, (3) Duplicating negative—Type 451 .

G. Sound Recording Cine Films: Gevaert Sound recording films are designated by the general code mark S.T., which is followed by a figure indicating the type of emulsion. The range of stocks comprises the following types:

(1) For variable density recording (odd number) S.T.3-Type 283.
(2) For variable area recording (even numbers) S.T.-Type 254 and S.T.6—Type 256 .

Gevaert Positive Cine Films: There are two types of Gevaert Positive Cine Films: (1) Positive Fine grain—Type 561 and (2) Positive Super Contrast-Type 553.

Gevaert Reversal Cine Films, Black-and-White: For general use the following reversal films are available. (1) Cevapan 23 Micro Reversal Type 051 of very fine grain for exterior shooting in

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

good weather. (2) Gevapan 26 Super Reversal-Type 062, twice the speed of the first and of fine grain suitable for exterior photography in poor weather and by artificial light. (3) Gevapan 32 Ultra Reversal Type 073, of very high speed and with relatively fine grain, intended for photography with artificial light and under very poor daylight conditions.

For the preparation of duplicate positives from positives, Duplicating Reversal-Type 090 is available.

For transmission by Television, two new reversal black-and-white films have been put on the market: Gevapan T.V. 08 with a speed rating of 1000 ASA and Gevapan T.V. 081 with a rating of 64 ASA. Both are intended solely for television.

Gevasonor: Gevasonor Magnetic Film-Type 200: A perforated film of plastic material with a coating of very sensitive iron oxide for the magnetic recording of electrical signals. Intended for sound recording in film studios. Replacing photographic sound film it has the advantage of permitting immediate playback without waiting for the film to be processed.
It is also used for electronic computors, monitoring and electronic brains.

Glass shot: Scene shot through optical glass on which part of a scene is painted to achieve a special effect. Not to be confused with process shot involving rear projection.

Gobo: Gobo is a portable, light deflecting or sound-absorbing panel mounted on an adjustable stand which can be raised or lowered. A small gobo is called a "flag".

Graininess (Sound): It is obviously important that fluctuations in the sources of illumination used for recording and printing shall be prevented, and that all causes of nonuniformity in development be minimized. However, when all these are done there are still variations in the opacity of exposed film. These variations are usually referred to as "grainness".

Gray Wedge: See Density Wedge.

Ground Glass: Optically ground glass through which cameraman looks to correct focus of lens.

Ground Noise Reduction: During times of low modulation that ground noise is most objectionable.

Ground-noise reduction systems used for variable-area recording provide for making off the unused portion of a sound track area. This may be done by biasing the galvanometer, or by use

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

of a shutter whose vanes cut off a portion of the recording beam during periods of low modulation. The shutter vanes move relatively slowly in and out, following the envelope of the waves recorded by the galvanometer.

In variable-density systems ground-noise reduction takes the form of making the print darker at times of low modulation. In light valve systems this is accomplished by bringing the ribbons of the light valves closer together by means of a buasing current while in the penumbra system of variable-density recording, using the galvanometer, a separate electromagnetic device similar to the shutter used for variable-area recording moves the vane, the shadow of whose edge constitutes the penumbra.

Gyro Head: A camera mounting on dolly or tripod which enables the operator to move the camera smoothly and quickly in any desire direction.

H

Halation: Halo surrounding true image on film. Caused by light too bright on the subject. (See films, Physical Properties of etc.)

Halation by Irradiation: See Films, physical properties of Agfa-Black-and-white and colour.

Head-on and Tail-away: Arrangement of shot which marks the removal of a character from the stage of our attention.

High angle shot: Shot taken looking down on the subject, is called a high angle shot.

High-Frequency Losses: Much of the progress toward better sound quality has been in the removal of some of the limiting factors that so restricted the frequency range in the earlier sound records, making them muffled and hard to understand. Better optical systems, narrower recording slits, finer grain films, ultraviolet light recording and printing, lens surface treatment to reduce reflection, and better knowledge and control of processing have made most of the improvement possible. One does not find as much literature on the subject of processing for improved high-frequency response in density recording as in the case of area recording, for other factors largely dictate exposures and developments for both negatives and prints. In area systems, satisfying the cross-modulation tests,

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

while not guaranteeing good high-frequency response, never conflicts.

High-Frequency Losses, Compensation of: The practice was adopted early of compensating for the expected high-frequency loss by exaggerating the amplitudes of the high-frequency components of speech and music at the time of recording. Fortunately for such of our sound recording the components of very high frequency—say, 5,000 cycles and above—are not encountered in amplitudes as great as those of the lower frequency components. Hence it has been found possible to "tip up" the recording characteristics without seriously increasing the tendency to overload. Such exaggeration of the high frequencies in recording is obviously a poor substitute for improving the technique of making the records, or in other words, eliminating the causes of the high-frequency loss. Moreover, the same factors which produce the high-frequency loss produce other types of distortion which are rendered worse in proportion to the magnitude of the high-frequency recording.

Such progress has been made in improving the quality of recording that it is not now necessary to make excessively large allowance for expected high-frequency loss. However, the practice of some tip-up has persisted for the following reasons: the simple expedient of widening the reproducing slit causes a relative loss of reproduced high frequency without necessarily introducing any other distortion. It has been found desirable, especially with variable-density systems, to permit some of this high-frequency loss in reproduction and compensate for it in the recording, for the net result is a reduction of the loudness of the high-frequency components of ground noise. It is important that the characteristics of reproducing systems with respect to response at various frequencies shall be brought close to some standard, and the Academy of Motion Picture Arts and Sciences has proposed a standard characteristic for theatre reproducing systems. The proposed standard reproducing characteristic contemplates a tip-up in the recording amounting to about 5 db between 1000 and 5000 cycles.

High hat: Extremely low camera mount for use on floor or table where tripod would be inconvenient.

High Key: A brilliantly illuminated setting usually used to heighten gaiety of comedies. Low key lighting is used to heighten suspense or for heavy dramas .

History of Cinematography: See Cinematography, History of.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

History of Indian Motion Picture: See Indian Motion Picture, History of.

Hot Mike: A microphone which is on and receiving. Also called a "Live mike".

Hot spot: Small area of a scene which has been too brightly lighted. Also denotes a flare-back into camera from bright metallic or reflecting surfaces.

I

I.F.I.: The Information Films of India was set up in February, 1943. The IFI produced documentaries in five languages, English, Hindustani, Bengali, Tamil and Telgu. The selection of themes was made by the Department of Information and Broadcasting in consultation with other departments of the Government of India. The Information Films of India was abolished in May 1946 in consequence of a cut motion passed by the Indian Legislative Assembly. In the course of its three years existence, the IFI had produced 101 shorts, several of which were chosen for exhibition abroad.

Image:— In the optical sense, a reproduction of an object formed by a lens or mirror.

Image Point: See Lens.

Improvements in recording: See Sound, Recording and Reproduction, improvements in.

Improvements in sound recording and reproduction: See sound recording and reproduction, improvements in.

Indian motion picture, History of: "The Moving Picture" idea had its origin in China, Japan and Siam who had their shadow shows as early as 5000 B.C. Al-Hassan, the Arabian philosopher, mentions (1100 A.D.) the matter of persistence of vision in his own works.

It is true, the moving picture has travelled to India from the West, but here, too, shadow-shows were in vague long ago. Mythological stories were depicted on translucent screens by means of shadows, light being supplied by ordinary torches. While the shadow-plays of China and Japan were "silent", in India, they had an added attraction of speech, in that the

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

"silhoutte motion picture" was supplemented by the dialogue of various persons. The Nepalese had and still have an altogether different mode of entertainment embodying the idea of motion pictures. Living persons, bedecked in a variety of costumes, dance, move, run and wrestle without uttering a syllable. In South India, "Kathakali" dance altough an ancient art is even to-day a popular form of entertainment. They narrate by their movements only legends and stories from their mythological literature.

Bombay — the Gateway of India — a Touring Cinema Co., owned by one Manek D. Sethna, has brought a big show to the town. It is dusk, people are seen hurrying up to the maidan, eager to gain admittance to the tent. The "theatre" is full, the show starts; (it is a film depicting the "Life of Christ") and soon the mystery of the Moving Picture is unravelled. The audience gaze in amazement and wonder at this new maryel of the West. The film, a two realer; the projector, hand driven, crude and cumbrous and the light is provided by an acetylene lamp.

Thus was built the first milestone in the Cinematic History of India. Progress thereafter was very rapid — too rapid to be believed. By 1910, many cinemahalls had sprung up and the motion picture as the popular form of entertainment was an accomplished fact — a serious menace to the theatricals.

"Harishcandra" was our first Indian film and late Mr. D. G. Phalke its producer. All honour to the genius of Mr. Phalke, "the father of Indian film Industry", who made the Indian film possible and sowed the seed of this great industry. In the above first film the part of Taramati was played by a male actor Pandoba Sane and the part of Harishchandra was played by Dattatraya Damodar Dabke.

One evening, in December 1911, D. G. Phalke was witnessing a film show of "The Life of Christ" at a Cinema in Bombay. "Why not substitute Krishna for Christ?", was the question he at once put to himself. This thought later became his obsession. To his discerning eyes the film "Life of Christ" and the photographic tricks therein offered him unlimited possibilities. He then set himself to the intensive study of books on film production—rare in those days within sixty days. After a short while, he undertook a journey to England, and within sixty days, returned to Bombay with all the paraphernalia necessary for film production. The Studio ready, Mr. Phalke launched upon his enterprise with assiduity and gave us "Harishchandra," the first of his labour. It took eight months in the making and saw the

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

light of the day in December 1912, when it had its premiere at Coronation Cinema, Sandhurst Road, Bombay. The film took the public by storm and proved a veritable gold mine.

The moving picture in the West, prior to 1911, was still in an embryonic stage and it was not till 1912 that the producer of the West was able to offer a full length feature in "Queen Elizabeth." It is a strange coincidence that his contemporary in India presented his first film "Harishchandra" in the same year. Thus it goes that the East and West virtually started in the moving picture race together.

Some-Mile-Stones: On Phalke's third voyage to England, he took with him his first three productions, viz., "Harishchandra", "Bhasmasur Mohini" and "Savitri". All of these were screened there and appreciated by the English audiences. The British Press was unanimous in their praise of these Indian films and admired their excellent photography, trick scenes, spectacular background and scenic effects and complemented Mr. Phalke for his skillful handling.

Upto the year 1917, Mr. Phalke produced 23 films, last being "Lanka Dahan". In the same year he took in five big businessmen as partners, a not too happy alliance as subsequent events proved. The new associates were V. S. Apte, L. B. Phatak, Mayashankar Bhatt, Gokaldas Damodar and Madhavji Jesing, who formed the Hindustan Cinema Film Co., incorporating Phalke's Films. The release of "Krishna Janma" (1918) and "Kaliya Mardan" (1919) in which D. G. Phalke's daughter, Mandakini played the child krishna, created a furore in the Indian film world.

Film Spreads to Bengal: To Calcutta came the stories of the phenomenal success of Phalke's films from the four winds, that bestirred Bengal's theatrical world and opened up new avenues for a man of enterprising spirit to take the initiative. J.F. Madan a wealthy Parsee originally from Bombay and owner of the Elphinstone Bioscope Co., was the bold man to come forward to dabble in film production in Bengal. With Jyotish Sircar as the cameraman, and his already going theatrical party, Madan formed the nucleus of his producing unit. He had to take the assistance of some foreign artistes and recruited Signor and Signora Manelli for playing the lead in his first production "Nala Damayanti" in 1917.

Although, in a literal sense, J. F. Madan is considered the progenitor of the film production in Bengal, it cannot be gain-

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

said that Anadi Nath Bose, Nitish Lahiry and Dhirendra Nath Gangopadhya—sons of the soil—are virtually, the pioneers.

Bombay—The Hub of Film Industry: In the wake of Phalke's Flms was formed the Patankar, Friends & Co., (1918), sponsored by S. N. Patankar and Dwarkadas Naraindas. Their studio at Dadar was a regular film-mill turning out pictures by the dozen. Krishna, Rama, Hanuman and other Hindu dieties had come out from the cold printed pages of the epics in a new animated visual film, bereft of speech, to entertain the teeming millions of India.

Suchet Singh, the first Hollywood trained Indian, having worked as associate under the gifted comedian, Charlie Chaplin, returned from America, about the end of 1918, with the avowed object of producing Movie Pictures in the country of his birth. Finding Bombay to be the most proper film field to be ploughed, he floated the Oriental Film Manufacturing Co. Ltd. It produced only four films. Notable amongst these was "Shakuntala", the immortal classic of our great poet Kalidas.

This company also gave us the first Topical film, "The Cremation of the Late Yokmanya B. G. Tilak", (1st August 1920). Every one of the Oriental films was an eloquent tribute to Suchet Singh's mastery of the film technique and his keen aesthetic sense. Suchet Singh, shortly thereafter, died in an accident. And with his sudden demise was also rung the deathknell of the Oriental Film Manufacturing Co. Ltd.

Ardeshir M. Irani entered the film field in 1920, when, with B. K. Dave, he organised the Star Films Ltd. His very first "Veer Abhimanyu", starring Sultana, proved a great box office hit.

A. M. Irani forged ahead and finally formed The Imperial Film Co. in September 1926. "Lion of Mewar" was the picture that bore the first imprint of the Imperial trade mark.

The pomp and pageantry of the Delhi Durbar in 1911 brought out to India one Charles Urban, of Kinema Colour Company of New York, to make a documentary film of the Coronation of H. M. George V—the first time that a Western producer, had come to the East for filmic material.

First Topical: "The Cremation of the late Lokmanya Tilak" (1st August 1920).

Maharashtra's Contribution: Art and Culture are supposed to be the special attributes of the Maharashtrian. That he, by their use, has made them indispensable adjuncts in the film

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

production has been amply borne out in "Sinhagad", "Sati Padmini", "Karna, The True Battler", all productions of Maharashtra Film Co., of Kolhapur. Late Baburao Painter, the exponent of art in films, (next only to D. G. Phalke and Suchet Singh) and the founder of the Maharashtra Film Co., in 1919, has done much pioneering work by his use of massive settings, photographic trick effects, rich costumes, reference-books for historical authenticity and for true and accurate portrayal of life of bygone ages and employing of hundreds of extras all for war and battle scenes — fine factors for achieving artistic excellence in the film drama.

Madras makes a film: In the year 1918, the enterprising R. Venkiah sent out his son R. Prakash to England and America to have trainng in Cinema technique. Returning after three years in 1921, father and son, floated the Star of the East Film Co. Their first picture "Bhishma Pratigna" was well received throughout India.

In May 1929, with Mr. Purshottamdas as partner, Haribhai Desai started Surya Film Co., at Bangalore. After about a year Mr. Purshottamdas retired and Mr. Desai became the sole proprietor of the company. This company produced silent pictures till the end of 1933. During silent era this company earned a great fame and their pictures were a rage all over India. Animals such as horse, dog, leopard and monkey, feautred in some of their productions.

Punjab and Film: The Great Eastern Corporation came into being in 1924, Sir Moti Sagar was its principal share-holder and Prem Sagar, the director in charge. By an arrangement with Himansu Rai, an agreement was entered into with the Emelka Film Company of Munich, Germany; whereby "The Light of Asia" was to be produced in India. Himansu Rai in collaboration with Franz Osten was to direct it and Joseph Wirsching was to crank the camera. The unit of the German technicians arrived in India in March 1925 and set to work on the production. Himansu Rai played the "Buddha" while Seeta Devi (Ranee Smith) was singled out to be the queen. "The Light of Asia" had its London premeiere in 1926 at the Philharmonic Hall, where it ran consecutively for over ten months. In the poll conducted by the *Daily Express*, "The Light of Asia" was declared to be the third best picture of that year. By Royal Command the film was shown before Their Majesties George V and the Mikado of Japan. Amongst the other notable personalities who saw "The Light of Asia" may be mentioned the King and Queen of Italy, the King and

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Queen of Belgium, King and Queen of Spain, and Kings of Sweden, Norway and Denmark. In all 425 prints of the film were made for distribution the world over. To the lot of the Great Eastern Corporation came only two positive prints of the film, to be distributed in India, to recoup their investment of Rs. 90,000, their contribution to the making of "The Light of Asia" Talkies.

New Era in Indian Pictures: Ardeshir M. Irani took the lead and equipped the Imerial Studio with a Tanar (American) Single Sound-on film recording system. It was a gala day in the Indian Filmdom when on 14th March 1931, Imperial Film Co.'s full length talkie "Alam Ara" in Hindi, starring Zubeida and Mastar Vithal and directed by Ardeshir M. Irani, amazed and thrilled the eager public that had packed the Majestic Cinema, Bombay, to suffocation. Krishna Film Company followed suit as the second and on its heels came Madan Theatres Ltd., with "Shirin Farhad", that beat "Alam Ara" hollow, Aga Hashar Kashmiri wrote the dialogues and the songs, recorded as it was on R.C.A. Photophone, the reproduction was clear as a bell.

The Pralhad Film Company was the fourth on the track. Their two productions, "The King of Ayodhya" (Marathi and Hndi), and "Jalti Nishan" (Hindi), produced in 1931, were masterpieces of art and stood in bold relief—distinct from the first three talkies.

Colour film: Kisan Kanya is the first Indian Cine Colour picture produced by Imperial Film Co., in 1938.

In 1938, the industry celebrated its Silver Jubilee when a motion Picture Congress was held in Bombay.

World War II was a boom period for the industry. In the postwar period there has been a progressive increase in the production of films. The Indian film has travelled a long way on the road to technical progress. There are signs that the industry is making efforts to realise its responsibilities towards new India after independence.

Few more points: It is said that one Mr. Patwardhan from Kalyan had tried to make a moving picture, and his attempt was known an "Shambarik Kharolika". Also a Bohari gentleman from Kalyan, had made some efforts in the direction of moving picture production in 1906. It must also be added here that, in 1909 a moving picture called "Pundalik" was exhibited in Bombay in Coronation theatre (Parekh Hospital Building, of today). This silent picture was made possible by Nana Bhai

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Chitre and Tipnis with the help of Dada Torne and an European cameraman Johnson.

Though the talkie picture was produced in March 1931, a recorded programme with picture was first shown in 1930, along with a film "Nakali Tansen" produced by Krishna Film Co. of Maneklal Patel. A talkie picture was taken when a girl student of the School of Indian Music, Bomby, sang a song in concert. Prof. B. R. Deodhar was a music director and Yashwantrao Kothare was a recordist. Though the credit of making a talkie picture does not go to these people, it must be admitted that it was a great and important first step towards making a talkie film.

Founders of the Indian Motion Picture Industry:

(1) Dhundiraj Govind Phalke: Born at Trimbak (Nasik) on the 30th April 1870. Matriculating, he joined J. J. School of Aarts, Bombay; later finished his study of Fine Arts at Kalabhuwan, Baroda; in 1909 he came in touch with the late Sheth Purshottam Vishram who sent him to Europe for training in Photo-engraving and Photo-Lithography. On his return he joined the Laxmi Art Printing Press. After about a couple of years, he left it and proceeded to Europe to study cinematography. Returning in 1912 he started producing pictures and completed his first full-length picture "Harishchandra" towards the end of the year. In 1913 he launched on Phalke's Films" —a regular film-producing concern and till 1917 produced over twenty subjects. In 1917, with the help of Seth Mayashankar M. Bhatt, Mr. Vamanrao Apte and others formed the celebrated Hindustan Cinema Film Co. From 1919-31 Mr. Phalke's production work, though prolific, was of intermittent character. In the middle of 1931 he was once more helped by Seth Mayashankar to produce the picture "Setu Bandhan" which was dubbed afterwards. His last talkie was "Gangavataran" for Kolhapur Cinetone.

A mechanical genius and an expert trick photographer, Mr. Phalke is the first director, the first cinematographer, the first cine-laboratorian, the first cartoonist, the first topical film producer, of India. No tribute is too great for this Grand Old Man of the Indian Cinema World, who expired on 16th February 1944.

(2) Mayashankar Mulshankar Bhatt: Born at Rajkot (Kathiawar) on the 4th July 1870; educated at Jamnagar High School and Victoria Jubilee Technical Institute of Bombay; entered in 1899 The Royal Yacht Club at Bombay as a First Class Me-

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

chanical Engineer and subsequently joined The New Great Spinning and Weaving Mills in 1904, with the financial help of his celebrated maternal uncle the late Mr. Kevalram Mavji Dave of Rajkot; joined in 1907 M/s Zaveri and Company as a partner; in 1909 started the noted film of Messrs Mayashankar Thakkar & Co., Mill Stores Suppliers, Engineers and Contractors, being of a nationalistic turn of mind and with ample funds at his command he started helping indigenous industries; in 1917 along with Mr. Vaman Shridhar Apte and others helped Mr. Phalke start in partnership the Hindustan Cinema Film Co., at Nasik, during 1917-21 distributed Hindustan pictures all over India; during 1917-20 bought H.M.S. 'Doris'; purchased in partnership with others the Adamjee Peerbhoy Mills; sponsored at Ujjain The Sipra Spg. & Wvg. Mills Co. Ltd., and opened a few ginning factories in Kathiawar and elsewhere. In 1920 along with Mr. Jaffar Hajeebhoy Laljee floated a joint-stock Co. known as "Carbon Products Ltd." with an object to produce Petrol from Coal and Dyes from the residue. He was responsible for introducing in India Agfa and Goevart raw Cine films during 1920-24 for which he secured selling agencies; in 1920 he sponsored the Star Films Ltd., he financed his cousin Mr. Bhogilal and Mr. Nanabhai Desai to start the Sharda in 1925, in 1930 he purchased the Sharda Film Co., outright for about five lacs; in 1936 sponsored Messrs Hardekars Ltd., (Jacquard Builders in India); was President of the Motion Picture Society of India for 1933-34.

Our Industry owes a great deal to this gentleman.

(3) Khan Bahadur Ardeshir M. Irani: Born on the 5th December 1886 at Poona; when very young aspired to be a Railwayman but soon drifted to commerce; with the financial help of his brother-in-law the late Mr. Boman Irani started the firm of Messrs. B. Ardeshir and Co., (Bombay) and dealt in musical instruments. In 1914 came in touch with the veteran showman Mr. Abdulali Yusufali and that resulted in the opening of the Alexandra Cinema at Lohar Chawl; from exhibition to distribution is an easy march and he secured agency of Universal Pictures of America; in 1921 in partnership with Mr. Bhogilal K. M. Dave launched the Star Films Ltd., in 1923 started The Majestic Film Co., in 1924 joined hands with Late Seth Aboo Hussein, and worked the Royal Art Studio; in 1928 inaugurated the Imperial Film Co., in 1931 produced the first Indian Talkie "Alam Ara", in 1938 produced the first Indian Cine Colour picture "Kisan Kanya".

He was one of our oldest producers, exhibitors and distributors

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

and the Pioneer of Talkie and Colour Film in India. He was the part proprietor of the Imperial Film Co., and Majestic and Alexandra Cinemas.

(4) Jamsetji Framji Madan (Late): Born on the 27th April 1856 at Bombay; in 1868 entered Elphinstone Natak Mandali and earned a name as an actor in the role of "Rameshr"; travelled all over India with the Company and became famous all over our sub-continent; early in this century he purchased the Company from the then proprietor late Seth Cooverji Nazir while the Company was in Calcutta; in 1907 opened the first Bioscope Hall at Calcutta; since 1919 started producing Indian Films; simultaneously acquired agencies of all the important foreign film producing companies and cine machinery manufacturers and built up a chain of theatre all over India. The number of theatres controlled by the Madan Theatres reached the century mark by 1930.
He was a great actor, a great dramatist, a great producer and a great distributor, but above all he was the GERATEST SHOWMAN.

(5) Jayshankar Khodidas Dwivedi: Born at Wankaner (Kathiawar) on Dassera day of Bikram Samwat 1945; educated at Wadhwan Vernacular School; in 1899 came to Bombay and studied arts under the famous Prof. Rane uptil 1903; entered printing line in 1904 and was assistant manager of L.N.H.O. Printing Press upto 1922; during these years fired by patriotic zeal wrote and published several pamphlets and booklets on Swadeshi and Nationalist subjects and also three social novels; in 1923 left the press; in 1924 founded Mauj Majah (Gujarati Weekly) to give light literature to the Gujarathi reading public of Bombay; soon saw possibilities of the Cinema Industry and directed his activities to the encouragement of cine-trade in India; is thus the pioneer cinejournalist of India; nearly in 1928 opened English columns in the Mauj-Majah and in 1929 sponsored the Moving Picture Monthly with Mr. Maneklal Joshi as its first Editor; this monthly attained an international fame.

The criticism appearing in his publications was always constructive and free of venom and prejudice and was avidly read by producers, distributors, exhibitors and others concerned, all over India. The Mauj-Majah Karyalaya was an institution in itself and through it that Grand Old Man of the Cine Journalism had been rendering a great and meritorious service to the Cine-trade and Industry in India and was respected by each and every one who really mattered in this business; was a free

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

thinker so far religion was concerned, a nationalist in politics, a lover of solitude and an intellectual aristocrat though a socialist in a general way.

(6) Narayanrao Alias Dhanji K. Desai: Producer and Cine-Laboratorian. Born at Surat on the 13th June 1897; educated at St. Xavier's School and College (Bombay), left College at the call of Gandhiji; in 1921 opened the Office Furniture and Equipment Bureau in Bombay; in 1921 joined The Sharda as General Manager; also produced a film in 1925-26; saw possibilities of starting independent Film Processing Laboratory and opened The Atmanand Laboratory in October 1927, the first of its kind in India; in 1933 sponsored Laxmitone Film Laboratory which was closed in 1938.

Dhanji's name will ever be remembered by the filming community as a man of original ideas which benefited materially the Cinema Industry in India a great deal.

Indian News Reel: In 1904, when Wrangler R. P. Paranjpe returned from England he was offered felicitations in Bombay, in Mangaldas Nathubhai's garden, and the same incident was filmed by one Mr. Save. He made a news reel of 200 feet and it was developed by Born and Sheppard Co. of England. This was the first Indian newsreel in its real sense.

Infinity: The farthest point from the camera which is still in good focus.

Inky dinky: See Dinky inky.

Insert: (1) Insert is a shot to be placed inbetween two shots for elimination of unnecessary footage or to bridge the gap (or a jump as it is also called) between shots that are impossible to match. Shots, such as close ups of letters, clocks, etc., in which no players appear and which, by their nature, need not be taken in conjunction with other shots in the same sequence.

(2) Scene made to be inserted after main photography is concluded.

Instructional Film: (1) A film demonstrating how to perform specific tasks may be called an instructional film. Films made to instruct certain groups with common specialized interests in various professions, trades, or civic activities, may come under this heading.

(2) The instructional or teaching film whether designed for child or adult, is an entirely different class of cinema. It is shown where groups of people assemble, willingly or unwillingly to

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

be told how to do something, how something works, or what something is like. The film becomes a moving visual textbook. It starts with the assured attention which the hypnosis of the bright moving picture in the dark room exercises on the child. It has the closest approach to actuality of any medium of reproduction as yet devised. It can, by its processes of slow and quick motion, its use of telephoto and microphotographic lenses and its innumerable technical advantages, reveal the processes of life with vivid accuracy. It can guide attention and concentrate interest. It can reproduce history in terms which can be understood by the child. It can visit foreign lands, and explore peoples and remote places. It can explain mechanical, mathematical and industrial processes. It can summarise vocations for the adolescent choice. There is nothing in the material world which seems barred to it.

Instructional film, essentials of:

(1) The film's potential audience, its knowledge and experience, must be known before the initial stages of scripting are undertaken.

(2) The film must follow the shortest distance between two points. There should be no superfluous footage, so that it can be kept to a length, usually about ten minutes, which allows for successful retention of its content. This is important if the film is dealing with a technically difficult subject. If the subject is a vast one the film should be made in several parts, each part allowing for the gradually advancing knowedge of the trainee.

(3) The instructional film is an adjunct or aid to the instructor; it cannot take his place.

(4) The film's technical content must be accurate, allowing for the fact that often a year must elapse between the initiation of the project and delvery of the finished film, during which time many training ideas may change.

(5) The production must be carefully designed to allow for the most effective use of a picture and commentary, or picture and dialogue technique with animated drawings being used as necessary. Music and sound effects should be used sparingly and only where absolutely justified.

(6) The film is intended to be a visual aid. The picture is the important thing, the sound-track is a supplement to the visual and must not be allowed to encroach upon it.

(7) The film must fill an integral part of the training syllabus, or be sufficiently important to force its realignment if necessary.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

(8) The subject must justify the use of motion-picture production, or, put more simpy, it must show movement.

Instructional film, hints for:

(1) Production should be in the hands of specialised film-makers who are prepared to study and experiment in educational film technique.

(2) Planning of films should be carried out not with a view to wide sales or private profit, but as a definite part of the nation's educational curricula. Many important advanced films (or for that matter the right sort of simple ones) can only be made under subsidy.

(3) Both planning and production should be intimately linked with the user's needs. The teacher knows little of the technique of film production. The technician knows little of curricula and class-room practice. Only by sympathetic collaboration between the two groups of specialists can the films be adequately made. The film producer should be as interested in the practical use of his finished product in the classroom as the teacher himself and should, as part of his researches, attend schools where his films are showing.

(4) The scheme must involve the provision of projectors on a generous scale in the schools and colleges. Films should become like textbooks, apparatus to the hand of the teacher as and when he wants them, and of a guaranteed quality which ensures they are not an insult to his class.

(5) The scheme should involve the pooling of international resources, so that instructional films made abroad can be interchanged with those made in India to the mutual benefit of all film-making countries. International exchange of opinion will be of the greatest value in the development of new techniques.

Instrumentation, Photographic: See Photographic Instrumentation.

Interior: Scene taken inside a room or studio.

Interlock: System whereby the same motor drives sound head and camera claw at constant speed in the projector. Also when camera and sound recorder are driven by the same motor.

Intermittent movement: The camera mechanism which allows the frame to be stationary as the scene is photographed. Film is not transported steadily through the gate but carried in, stopped, and then taken down.

Iris: An adjustable diaphragm of thin plates in front of a camera lens.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

J

Joining the film pieces: The pieces of the film to be joined are placed in the splicer with the teeth engaged in the sprocket holes and the emulsion side upwards. The two ends of the film are allowed to protrude beyond the hinged flaps. Then the emulsion from one peice is removed by means of a scraper. The flaps holding the second piece of the film is now closed. Thus trimming the protruding onds by a guillotine action. After brushing away any dust, the film cement is applied, with brush thinly and only on the scraped area. Immediately afterwards the splicer is closed, thus pressing the overlapping portion of the second piece of film into firm contact with the first. Splice is left under pressure for nearly twenty seconds to allow it to set. Thus the cement softens the base of both pieces of film and welds them together.

In 16 mm. film there is no blank space between the pictures or frames as these are called. Therefore, great care should be taken to ensure a clean joined and an overlap exactly coinciding with scraped area, otherwise a splice will be projected. The film that is old or dirty is sometimes difficult to join. In such cases it is advantageous to scrap both portions of film. Avoid holding the film by its surfaces, but cultivate the habit of holding the film by its edges.

Colour film should be handled in exactly the same way as black-and-white reversal material, but it is necessary to ensure that the cement does not come in contact with any other portion of the surface of the film. Special colour film cement does not affect the dyes.

Jump cut: A space between two scenes whereby the action in the first scene is not smoothly bridged to the action in the following scene.

K

Kerr Cell: See Sound recording-variable Density System.

Key light: The main illumination of a setting. High key has extreme brilliance and is required for colour work. Low key is used to highten dramatic impact .

Key Line: Line of dialogue which reveals the heart of a story situation.

Kinetoscope: This was a "talking machine" whereby one person at a time could watch a 40 feet length of film passing through

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

a series of rollers behind a powerful magnifying glass. This machine was made by Edison, and exhibited at the Chicago world's fair.

Kodachrome Process: The 'kodachrome' process is a subtractive type process wherein a superimposed layers of cyan, magenta and yellow dyes in the final film exert control of the primary colours-red, green, and blue. There are three types of 'kodachrome' film.

'Kodachrome' films, properly used, give satisfactory colour rendering, but they are not intended for making precise colour records, or for matching or measuring colours.

(1) *'Kodachrome' Film (for Daylight) Type* 5263 (16 *mm.*): 'Kodachrome' Film (Daylight Type) is an integral tri-pack colour film for general outdoor use, yielding full colour transparencies for projection.

(2) *'Kodachrome' Film for Colour Duplicate Printing Type* 5294 (16 *mm.*): This film is intended for making duplicates in colour of 16 mm. originals on 'Kodachrome' Daylight Type and 'Kodachrome' Type A Safety Colour Films. It is not suitably sensitized for making original exposures in the camera.

(3) *'Kodachrome' Duplicate*: 'Kodachrome' duplicates from 16 mm. 'Kodachrome' originals may be prepared by printing the original on to 'Kodachrome' Film for Duplicate Printing, type 5294 in either continuous or step printers which have been suitably modified to provide adequate light intensity and colour balance and appropriate means for control of these factors.

L

Lab: Dimunitive for laboratory where film is processed.

Lap Dissolve: Mixing up the ends of two shots, end of one shot is to be mixed with the beginning of next shot.

Lap Dissolve Sequence: (1) A series of time lapses, (2) a series of transition, (3) a mixture of time lapses and transition.

Lavenders: See Fine grain.

Laws of story telling: Laws of Balance, Timing and Economy.

Lazy-8: Paramount have devised a special camera called the "Lazy-8" in which the film magazines lie on their side and the film runs through the camera horizontally. Each new frame is eight sprocket holes in length instead of the conventional four.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Paramount adopted this revolutionary new camera as a means of obtaining increased picture width without the use of wider than normal film, such as 65 mm. or 70 mm. which have been introduced in some wide screen processes in the past. The "Lazy-8" system utilizes standard 35 mm. stock which furnishes a negative image area approximately two and a half times the regular size. This larger negative is optically printed in reduced size to standard 35 mm. positive in an operation which also reverses the image 90 degrees.

This new technique results in a projected picture of considerably improved quality, an appreciable reduction in grain, better resolution and increased depth of field.

Lead: (1) The leading role (most important) in a production. (2) Male or female performer in principal role.

Leader: Opaque or transparent film or tape used for threading recorder or reproducer. Also used in work print for gaps caused by missing films, and sometimes called "slugs".

Lecture Film: Film intened for use in universities, research institutes, and other centres of more advanced academic learning, are called lecture films.

Leit-Motif: See Relational Cutting.

Length of Children's Films: See Children's Films, length of.

Lens: (Latin, lens, a small bean or lentil). A lens is a piece of transparent material (usually glass) bounded by curved surfaces (generally spherical, including flat). Transparent substances have the property of bending, or refracting, rays of light which fall obliquely, and the effect of the curvature of the surface is to cause all rays emanating from the point to be refracted so as to pass through a second point. The first is called the object point and the second the image point.

Sir Christopher Wren was one of the first to make satisfactory lenses.

Lens Coating: Lens coating is a process in which thin films of transparent materials are applied to the optical surfaces of a lens system.

By properly choosing the film material and controlling its thickness, reflection may be greatly diminished, and the over-all transmission of the system increased by an amount which depends on the number of surfaces coated.

Lenses, coated: Dr. J. Strong of the California Institute of Technology, has succeeded in coating lenses by a physical rather

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

than a chemical process, and therefore, such coating may be removed if desired and will leave the lens in its previous condition.

Lenses, use of: Cameraman differ in their use of lenses for certain shots, but roughly speaking, lenses with the following depths of focus are used for the following purposes:— 1 in. lens for long shots, 1½ in. or 2 in. lens for medium shots, and 3 in. lens for close shots.

Level: (1) The amout of volume heared or electrically measured. (2) Pitch at which the sound or picture records best.

Library: (1) Collection of shots which may be useful for cutting in to future films. (2) Place where stock shots are stored and obtained.

Library shot: See Stock Shot.

Light: (1) A form of energy emitted as radiation from luminous bodies, and reflection in some measure from the surface of any body on which it falls. The elocity of light in vacuo is about 186,000 miles per second, which is also that of cosmic rays, X-rays, ultra-violet and infra-red radiation, and wireless waves.

Visible light covers the range of wavelengths from 4,000 Angstrom units (A.U.) to about 7,200 A.U., the shortest wavelength correspondingly to violet and the longest to red.

(2) Light is the wave-range of electro-magnetic radiation, which creates the sensation of light in the human eye. This range is approximately from wave length 400 to approx. 760 mm.

Adjacent to the range of visibe light there are further ranges of electro-magnetic radiation, which do not create the sensation of light in the human eye, but are effective photographically. These are towards the short-wave side: ultra-violet, X-ray and gamma-ray radiation; towards the long-wave side; infra-red.

Light, the intensity of: The unit for the light intensity used to be the Hefner candle (HK). Since 1948 a new unit has been adopted internationally and called the "new candle" (NK), the name of which was changed, however, in autumn 1948 to "candela" (cd.)

Lighting: Lighting is all-important to the shot. It is rare to see a flat white light in an modern film. Lit from various angles, actor, furniture, property and set can be induced to make the shot pictorially impressive. The sense of pattern can be developed by the sharpness of high-light and shadow, or the sense

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

of mystery deepened by the use of misty half-light produced by the device known as a soft focus or an image slightly blurred.

Lighting (Indoor): There are five kinds of lighting: (1) Basic light, (2) Contour light, (3) Semi-Silhoette light, (4) Dynamic light, and (5) Plastic light.

For the sake of clarity and convenience, a comparative summary of the above five lights is given here under.

The comparison is made from three points of views: (a) Physical characteristics, (b) Emotional qualities, (c) Approriate subject matter.

a) *Physical characteristics*: (1) Basic light:— (A) Background and light area of subject equally illuminated. (B) Balanced.

(2) Contour light:— (A) Background and light area of the subject equally illuminated. (B) Narrow outline of shadow. (C) Nearly balanced.

(3) Semi-Silhouette light:— (A) Background is more brightly illuminated than light area of subject. (B) Balanced.

(4) Dynamic light:—(A) Background is darker than light-area of subject. (B) Unbalanced.

(5) Plastic light:—(A) Background is intermediate in tone between the light area and the shadow area of the subject.

b) *Emotional qualities*:— (1) The Basic, Contour and Semi-Silhouette lights are balanced. (2) The Dynamic and Plastic lights are unbalanced.

The difference in quality and meaning of these two general types of lighting is suggested by the extended comparative list given below:

Basic-Balanced	*Dynamic-Unbalanced*
Static	Suggests movement
Classic	Romantic
Timeless	Episodic
Impersonal	Personal
Aesthetic Emotion	Explicitly Emotional
Remote	Familiar

c) *Appropriate Subject matter*: (1) Basic light: (A) Close up etc. General portarit work. (B) Impersonal Pictorial subjects. (2) Contour light: (A) Profiles. (B) Still life of delicate colours, glassware etc. (C) Nudes, (3) Semisilhouette light: (A) Masculine portraits. (B) Oriental types. (C) Montage. (4) Dynamic light: (A) Character heads. (B) Dramatic Episodes. (C) Familiar portraits. (D) Atmospheric subjects. (5) Plastic light. (A) Sculpturesque nudes. (B) Sculpturesque heads. (C) Still life.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Lighting Outdoor: Sun light is the only source of lighting for outdoor shooting. That which we broadly classify as sunlight is really an infinite variety of lights, varying enormously in intensity, changing in strength every moment of the day, and altering in quality with every passing cloud. Daylight is, of course, predominently Dynamic in its quality. This quality is most evident in direct, brilliant sunlight, unmitigrated by any clouds or shade; this light is only adaptable to subjects of bold and craggy modelling. Daylight between 11 a.m. and 2 p.m. should never be used for shooting. During this period the sun is so high on the head that it hides the eyes in black pits, and is of so great intensity as to be unmanageable.

The sun in the morning or just before setting has a warm brilliance that gives luminusness to shadows. The light then loses its sharply dynamic effect and partakes more of the qualities of Plastic light. For outdoor shooting, reflectors of silver paper pasted on wooden boards are used to brighten the shady portions of the subjects.

Light equipment: All photographic lighting equipment can be into two broad groups, according to whether the unit is used for spotlighting or floodlighting purposes. The former is characterized by a concentrated beam of high intensity and controllable spread. The latter by a smooth radiation of relatively lesser power, covering as a rule of fixed angle of about 60 degrees. These units may be further grouped according to whether they use carbon arcs or incandescent filament ("Mazda") globes as their light source.

The floodlighting units are used to provide a uniform overall minimum-exposure level of illumination, to lighten shadows, to illuminate backings, and to give a soft general front-lighting in close shots of people.

The spotlighting units, the beams of which may be accurately controlled as to both intensity and spread, are used for more specific lighting purposes, for creating effects of roundness and depth (modelling) in both sets and players by means of highlighting and half-tones, and to project light into deep sets.

Tungsten filament light sources may be used in illuminating for both black and white, and colour photography.

Modern arcs have been developed specifically for the requirements of natural-colour photography, and are universally used on Technicolor productions.

Light level: Intensity of light on scene.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Light volves: The first successful light valve for sound film recording was invented by EUGENE LAUSTE and was the subject of a master patent, granted in August 1907.

Light Waves and Sound Waves: Light waves and sound waves tell us about the conditions of things in the world in which we live, what these things 'ARE' and what at the moment they are 'DOING.' In this we arrive without actual contact at a knowledge of these things across space, and actually at a much better and more thorough knowledge than is possible by the direct process or touch. That is what is called sight and hearing.

Light gives us the 'being' of things, while sound generally only gives us incidental 'doing'.

Line of light: See Description of a Sound track.

Lip sync: Technique whereby words are fitted to lip movements of performers not making the speeches. Sometimes misused to denote dialogue picture or direct recording.

Lip Sync, Recording for: See Recording for Lip Sync.

Live Mike: See Hot Mike.

Location: (1) Natural settings, usually out of doors, where shots for a film are taken.

(2) Any place apart from stage or studio set, in which picture is being shot.

Location Manager: Location manager is a person who finds out natural backgrounds against which the open air scenes may be taken. If suitable site is not found the "exteriors" are built in the studio or some place nearby used for the special purpose.

Long shots: A shot in which the camera is, or appears to be, at a considerable distance from the subject. If the subject is a human figure it would occupy about one third of the picture vertically.

Loop: A continuous ribbon of film without beginning or end. Used for moving background in rear projection, and also for background sound effect in mixing.

Loss of light in lenses: In passing through a lens, light is lost both by absorption and by reflection. The former loss is small, amounting only to some 2.4 per cent for each centimeter thickness of glass traversed.

Lot: Open space on studio property where exterior sets may be erected.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Low angle shot: Shot taken looking upward, is called a low angle shot.

Low key: Under-illumination of a scene to heighten dramatic action.

M

Magazine: Light-tight film containers in which film is stored while used in a camera.

Magna Colour: Magna colour is a two-colour system and is subject to limitations in its colour rendition. While excellent results can be produced with the proper care, exact rendition of the many colours is impossible.

Magna Film: See Wide Film.

Magnetic Film: See Gevasonor .

Magnetic Loops, Procedure for: See Procedure for Magnetic Loops; under Recording for Lip Sync.

Magnetic recording: Recording sound or pictures on plastic tape coated with iron oxide particles which are arranged or disarranged by magnetic action brought about electronically.

Magnetic Recording: Magnetic recording systems which provide greatly improved operating efficiency as well as economies in time and materials, include facilities for: (1) stopping and reversing recorder and projector without losing synchronism, and (2) changing over from Record to Playback, or vice versa, silently, while running. These facilities make it possible to correct errors in narration and re-recording jobs without need for rethreading, splicing or blooping the film.

An RCA Fantasound type of film reproducer was fitted with an erase and record head and was in successful use for recording and reproducing narration tracks as early as 1947.

Before the advent of magnetic recording, the normal practice in recording narration tracks for motion picture was to use regular photographic film, and to record "wild", that is, without picture, and make numerous retakes to obtain the desired inflections and timing. The negative would then be developed and printed, and the print sent to the cutting room where considerable editing would have to be done to cut out errors, splice in the corrections, and juggle sentences back and forth to ob-

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

tain the desired timing. In spite of the high cost of this procedure, the final result often left much to be desired because of the noise introduced by excessiv handling of the film, the plices, and the inherent noise of film processing.

Magnetic recording appeared to offer the possibility of eliminating most of these problems.

Each type of equipment has its own problems, but the general conditions which have to be met are as follows:—

(1) The use of a separate playback head is not desirable, because this causes an unavoidable time delay. A single head should be used for both Record and Playback, with appropriate switching.

(2) A single key should be provided, with three positions: Record in one direction, Playback in the opposite direction, and a neutral position in the centre.

(3) The bias and erase oscellator should be of a type which provides a separate oscillator tube followed by a driver stage and output stage. This permits to be controlled by the voltage on the driver stage while the oscillator tube operates continuously, so that no trouble is encountered due to frequency shifts.

(4) When throwing the key from Playback to Record, the head should immediately switch from the input of the playback amplifier to the output of the recording amplifier. After a short delay, approximately ¼ sec., the plate voltage is applied to the driver stage of the oscillator, which should be arranged so that bias and erase currents build up gradually in about ¼th sec.

(5)When throwing the key from Record to Playback, the bias and erase currents shoud be allowed to die down gradually (in about ¼ sec.) and then 1 sec. later the head should be switched from the Record amplifier to the Playback amplifier. In other words the important consideration in effecting quiet transitions from Playback to Record, is to be sure that the head is switched before the bias currents build up; while, in going from Record to Playback, the bias currents must be allowed to die down gradually before the head is switched.

This last precaution, incidentally, insures against the possibility of leaving the head in a magnetized state.

(6) The neutral position of the key is utilized to keep the playback circuit open momentarily while switching from Record to Playback, so that no bloop is heard in the monitor speaker while the bias currents are collapsing.

Magnetic Recording Equipment (Portable): New portable mag-

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

netic recording channel, designed primarily for 17½ mm. film provides high-quality operation and all of the needed facilities for production recording. By operating at 45 fpm. a considerable economy in film cost is realized and the size and weight of the recorder are reduced. The recorder is also adaptable for 16 mm. or 35 mm. film. A new amplifier system utilizing miniature tubes and small components is provided as part of the equipment.

On May 18, 1948, the first studio-type magnetic recording channel was described at the Society's (SMPTE) Convenion at Santa Monica, Calif.: and, on October 27 of the same year, the first portable magnetic recording equipment was presented at the Society's Convention at Washington, D.C. Both of them perforated 35 mm. magnetic film.

Magnetic Recording for Lip Sync: This is the operation in which a completed language version of a production is provided with a new sound track in which a foreign language has been substituted for the original version. Where actual dialogue is involved, the translation to the foreign version is made with a foreign word to match as closely as possible the actual syllables of the words. The recording of this translation then becomes a very exacting process, wherein the speaker must synchronize his words as closely as possible to the actual lip movements of the person on the screen; hence, the term lip sync.

The usual procedure throughout the industry is to break the picture down into a large number of short loops and project each of these repeatedly while an actor speaks the foreign words and attempts to match his lip movements to those on the screen. Several rehearsals are made, followed by a number of takes on film. The percentage of NG taks is usually rather high, resulting in unavoidable wastage of film. In an effort to reduce the wastage, it is customary to print several takes and combine the best portions of them. This entails considerable work in the cutting room, and infinite care on the part of the editors to accomplish a smooth job, free from noise due to handling and splicing of the film. Since considerable NG footage must be developed and printed, the process is rather costly, but this was unavoidable before the advent of magnetic recording.

In this way, the editor receives only OK takes from the laboratory, and needs only to splice them together in proper sequence to make a complete sound track. Bloop marks can be record-

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

ed from the projector in the usual way to aid in proper synchronizing.

Magnetic Tape, 1/4 in.: Synchronous ¼ in. magnetic tape can be used in various stages of motion picture production. With proper modifications of existing commercial equipment, ¼ in.-tape can be made to do practically everything possible with 35-mm. sprocketed magnetic film. Savings in cost and storage space can be more than 90 per cent. This new technique is equally valuable for producing motion pictures for television.

Some of the possible uses of ¼-in. tape are:—

(1) The straight synchronous recording of all stage and location recordings.

(2) The synchronous recording of all composite music and effects tracks for foreign versions.

(3) All important re-recordings made to photographic release negatives for answer prints could also be duplicated and preserved on ¼ in. tape.

(4) All valuable music and sound effects libraries can be preserved with higher fidelity and in less space by re-recording to ¼ in. tape.

(5) All new music and sound effects can be recorded originally and preserved on ¼-in. tape.

(6) All film-strip narration tracks can be recorded originally on ¼ in. tape for re-recording to disc masters.

(7) When suitable ¼ in. synchronous editing equipment is available, many of the re-recording operations now done with 35-mm. photographic tracks could be done directly with ¼ in. tape tracks.

(8) When a lip-synchronous project is being done by the magnetic-loop process, the 35-mm. loops can be transferred to ¼ in. tape instead of to photographic film.

Main steps in motion picture production: See Motion picture production, main steps in.

Main Titles: See Titles.

Married print: Combined print of picture negative and sound negative.

Mask: Strip of film with parts opaque to blank out light from the film. Used in trick photography and composite printing.

Masking: Term used to indicate the blocking out of part (usually the edges) of a photographic image.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Master Shot: A shot covering the action of a long scene but which is afterwards to be broken up by close-ups, cut-ins etc.

Matipo Colour: See Debrie Matipo Colour.

Matrix: See Subtractive method.

Matte Roll: See A-roll.

Matte shot: Technique whereby a part of a picture is blanked out during exposure. Scenes seen through a keyhole or binoculars are good examples.

Matte, Travelling: See Travelling Matte.

Maurer 16 mm. Sound Recording System: See Sound Recording System, maurer 16 mm.

Medium Shot: A shot, in effect, about mid-way between close up and long shots.

Methods of Making Films: There are three main methods of film making. (1) First the picture is taken on 35 mm. negative, and positive release prints are made from it either in 35 mm. or 16 mm. width. (2) The picture is photographed on 16 mm. negative and release prints are made on 16 mm. positive. (3) The picture is photographed on 16 mm. reversal film. This is the method used for "home-movies" when only one print of the picture is needed.

Any picture made in 35 mm. width can be successfully reduced to the 16 mm. width. But it is impractical to enlarge the 16 mm. film to the 35 mm. width.

Miniature: Midget sized reproduction of a large object photographed in proportions to make it look like the real thing. Much used in the trick work.

Mist making: See Fog making.

Mix: (1) A mix is a fade in superimposed on a fade out. It is called "DESSOLVE" also. The new image appears on the top of the existing one which then slowly disappears. It is produced by overlapping to fades. (See Dissolve)

(2) The merging of one scene into another by technical means.

Mixer: A panel of dials for controlling and blending of sounds for balance and level.

Mob Scene: A scene in which a group of actors or a crowd is used.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Mobility of Narration: Mobility of narration is gained not by constant change of setting, but by constant reason for the change of setting. The writer must be concerned not with "where" but with "why".

Modulation: Single cycle, or several, transferred photographically to the film sound track.

Monitor: An electronic reproducer placed in the TV circuit between camera and transmitter to permit control engineers to see picture and hear sound for audio and video adjustments.

Monopack Colour Process: See Technicolor Monopack.

Montage: (1) It means the series of quick shots, presented to convey certain facts or thoughts. The flash shots many of them come on top of the other without individual dissolves. To show the scenes in the fair, this type is used, by mixing the various shots, to create the desired atmosphere.

(2) Combination of a number of short film sentences to give an impression of an atmosphere, a mood etc.

(3) Montage is said to have originated in Russia as a result of shortage of film stock. Soviet film directors found that they could join pieces of film, only a few frames in length and obtain effects not inherent in the individual pieces.

Mood Music: Musical background which sets the mood for the action or reaction of audience to the story.

Motion picture production, main steps in:—

(A) *Blueprint*
1. Getting the facts.
2. Contract.
3. Story out-line.
4. Shooting script.

(B) *Preliminaries*
1. Casting.
2. Choosing locations.
3. Building Sets.
4. Properties & costumes.

(C) *Art Work*
1. Art for titles.
2. Shooting titles.
3. Art for animation sound.
4. Shooting animation.

(D) *Shooting*
1. Direction.
2. Camera.
3. Sync.
4. Production stills.

(E) *Editing*
1. Selecting scenes.
2. Work printing.
3. Editing.
4. Master cutting.

(F) *Recording*
1. Musical score.
2. Sound effects.
3. Narration.
4. Final recording.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

(G) *Laboratory*
1. Special effects.
2. Timing original.
3. First print.
4. Release prints.

(H) *Distribution*

Movement: Movement is the expression of life, and movement can endow inanimate objects with a sympathetic life which intensifies their meaning. Any and every movement will not build a film. It must be selected for its significance. Movement makes a plot. Movements are words for the script writer.

Movieola: This is an extremely useful instrument for seeing the moving pictures in editing stage. It saves the trouble of lacing film into the projector, when it is important to watch a piece of action that involves critical cutting.

Movietone Black: Liquid which is used to reduce the sound during projection.

Moving picture camera: William Friese Greene actually invented first moving picture camera. To him belongs the distinction of being the first man to photograph and show moving pictures that move. One fine November day in 1889, he exposed his 20 feet length film.

Moving Shot: When the truck or trolly and characters are both moving, the shot is called a moving shot.

Music for Films: Film music must be aimed at a very broad audience and should be understood by and acceptable to that audience. Most people are very vulnerable to the emotional appeal of music. Among the possible dramatic and aesthetic functions of music in relation to films, the most obvious is that of actuality. Very often there is an opportunity of introducing music as part of the action with a view to helping the story or situation. There are two ways of doing this, either directly or by antithesis. In the first method the music corresponds with the mood of the scene, gay, sentimental or nostalgic scenes having music of a similar nature. By the use of antithesis, the dramatic tension of the scene can be emphasised by having music of a contrasting mood.

The most general function of film music is that of creating atmosphere. Sometime it may be a wall paper, a pleasant background of sound that defines the time of day or season of the year, or perhaps the geographical location. A second type of general atmosphere is that of "mood". There is a type of music

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

that will strike directly into the sub-conscious emotions of the audience to reinforce such moods as gaiety, sentiment, horror, exultation, anxiety, passion and so forth.

Then there is "tension". This, unlike mood which may be static, is dynamic, and music can be used for a lowering or raising of tension. In films, music can be called upon to add a further dramatic dimension to what is already in the picture in order to grip the audience more tightly.

Music can act as a commentator. It can provide a definite idea; a clue to the scene which the audience would not otherwise have. It is possible to have a very closely fitting musical commentary.

Music is also used for the underlining of something significant and in this way the most ordinary phrase of dialogue can be singled out for the special attention of the audience. For suggesting time lapses or to create continuity between two scenes, music can be the linking medium.

Musicians can often render first aid to scenes which are not completely dead, but have just failed to come off. Music can even bring emotional warmth to a scene which lacks it. It also can find together a set of loosely related shots and give them a basic rhythm. It is almost impossible to do a montage unless the shots are bound together with music.

Finally, there is one time when the musician comes into his own. That is in making musical frames—the main and end title music. Particularly the main title music should suggest the nature of the forthcoming picture.

Music Director: One who composes tunes for the songs and gives background music. While composing tunes he has to think of the tempo of the story and mood of the particular scene in which the song is to be incorporated. Tunes of the songs and the background music must be suitable and add necessary colours of emotions to the entire picture. Music Director sees the picture after final cutting is completed, goes into the mood of the picture and then composes the tunes. He uses many kinds of musical instruments and takes work from lot of musicians.

Music, Mood: See Mood Music.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

N

Narration: Voice on sound track commenting on the scene being seen on screen.

Narration, Mobility of: See Mobility of Narration.

Natural Vision: First of three-dimensional systems introduced, with Arch Oboler production of "Bwana Devil." Used system developed by M. L. Gunsberg's Natural Vision Corporation.

This system requires use of glasses. Cost of installation differs as to situation, and there is no set price. Booth-wiring must be sufficient to carry extra load of two projectors used simultaneously; synchronization is achieved through interlocking device, mechanical or electrical; special Polarized screen required, plus two Polaroid filters, possibly some other adjustments in sound.

Naturama: See Wide Screen processes.

New Candle: See under Light, the intensity of.

News Reel (Indian): See Indian Motion Picture, History of.

Newsreels: In September 1943, the Government of India took over the Indian Movietone News and renamed it the Indian News Parade. News-reels afterwards came to be produced every week in English and also in addition to the four Indian languages.

N. G. Shot or Take: A shot or take that is not good, or useless.

Notch: Shallow cuts on edges of a film to warn lab technicians of timing changes to be made in a printer.

O

Objectionable Films: The following kinds of films are liable to objection: those which,

(1) Extenuate crime or which familiarise young people with crime so as to make them conclude that theft, robbery and crimes of violence are normal incidents of ordinary life and not greatly to be reprobated; or which exhibit the actual methods by which thieves carry out their purpose, and make the methods of crime the chief theme; or in which crime is the dominant feature of a serial and not merely an episode in the story.

(2) Undermine the teaching of morality by showing vice in at-

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

tractive form even though retribution follows; or casting a halo of glory or success round the heads of the vicious; or suggesting that a person is morally justified in succumbing to temptation in order to escape from bad circumstances or uncongenial work; or bringing into contempt the institution of marriage or suggesting abnormal sexual relations; or lowering the sacredness of the family ties.

(3) Exhibit indecorous dress or absolute nudity of the living (except infants and small children); or nude statues of figures in suggestive positions.

(4) Bring into contempt public characters acting as such, e.g., ministers of religion, ambassadors and official representatives of foreign nation, judges, the police, civil servants of government, etc.

(5) Are calculated to wound the susceptibilities of foreign nations or of members of any religion.

(6) Are calculated or possibly intended to foment social unrest and discontent; i.e., not scenes merely depicting realistically the hard conditions under which people live, but depicting the violence that results in an actual conflict between Capital and Labour.

(7) Are calculated to promote disaffection or resistanee to government or to promote a breach of law and order.

Objectionable subjects: The following is a list of film-subjects that are likely to be objectionable:

1) Indecorous, ambiguous or irreverent titles or sub-titles.
2) The irreverent treatment of sacred subjects.
3) Materialisation of the conventional figure of any founder of religion.
4) Excessively passionate love scenes.
5) Indelicate sexual situations.
6) Scenes suggestive of immorality.
7) Men and women in bed together.
8) Situations accentuating delicate marital relations.
9) "First Night" scenes.
10) Confinements.
11) Subjects dealing with the premeditated seduction of girls.
12) Scenes depicting the effect of veneral diseases, inherited or acquired.
13) Subjects dealing with the "White Slave" traffic.
14) Scenes laid in brothels.
15) Prostitution and procuration.
16) Illcit sexual relationships.
17) Incidents suggestive of incestuous relations.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

18) Themes and references relative to "race suicide".
19) Incidents indicating the actual perpetration of criminal assaults on women.
20) Nude figures.
21) Unnecessary exhibition of feminine under-clothing.
22) Bathing scenes passing the limits of propriety.
23) Indecorous dancing.
24) Offensive vulgarity, and impropriety in conduct or dress.
25) Vulgar accessories in the staging.
26) Cruelty to young infants and excessive cruelty and torture to adults, especially women.
27) Cruelty to animals.
ing seen on screen.
28) Cruelsome murders and strangulation scenes.
29) Execution.
30) The modus operandi of criminals.
31) Drunken scenes carried to excess.
32) The drug habit, e.g., opium, morphia, cocaine, wine etc.
33) References to controversial politics.
34) Relations of Capital and Labour.
35) Scenes tending to disparage public characters and institutions.
36) Scenes holding up the National Flag to contempt or ridicule.
37) Subjects dealing with India, attempting to suggest the disloyalty of Government servants or bringing into disrepute the Government prestige.
38) The exhibition of profuse bleeding.
39) Realistic horrors of warfare.
40) Scenes and incidents calculated in time of war to afford information to the enemy.
41) The exploitation of tragic incidents of the war.
42) Incidents having a tendency to disparage other nations.
43) Brutal fighting.
44) References to illegal operations.
45) Blackmail associated with immorality.
46) Companionate marriage and free love.
47) Unrelieved sordid themes.
48) Unpleasant details of medical operations.
49) Intimate biological studies unsuitable for general exhibition.
50) Gross travesties of the administration of justice.
51) Serving and drinking liquors.

Object Point: See Lens.

Off-Beam: Speaking into a microphone outside the angle of pick-up.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Off scene: Voice on screen while performer is not seen.

O.K. Shot or take: A shot or take that is good or useful.

Omnisphere System: Professor Cohen, the inventor of this process describes it as follows: "This system which I have called the Omnisphere will take and project pictures of the width of cinerama or a completed half circle or even a full circle if one wants it." According to the inventor, the problem of projection of motion pictures on a circular screen can be accomplished for any projection are upto 360 degrees using only one projector, 35 mm. film and several ordinary stock lenses.

Omnisphere projects pictures in motion simultaneously in 180 degree. The camera and projector of this process are patented.

Opacity: See Density.

Optical-Magnetic Sound—16 mm., Projector: See Projector, Optical Magnetic sound—16 mm.

Optical Printer: Apparatus for enabling images from one film to be photographed on to another film.

Optical process: An interesting optical process, which has been principally uesd for sub-standard film under the name of Kodacolor, is the Keller-Dorian process. Here a tripartite filter in the three primary colours red, green and blue is placed in juxtaposition with the taking lens. The panchromatic negative film is placed with its transparent back facing the lens, this back being embossed with tiny cylindrical lens elements running parallel to the length of the film. When the film is exposed the main lens "draws" the picture while the lens elements on the film base, by forming individual images of the tripartite filter, make the local colour selection.

The reversal positive film obtained is in monochrome, but split into narrow vertical lines of varying density corresponding with the action of the lenticular elements. A similar tripartite filter is used in projection. Although Kodacolor has been superseded in the sub-standard field, attempts have been made to revive the Keller-Dorian process for professional purposes, and a means has been evolved for copying the film. (See colour film).

Optical Recording System: About 1932 the arrangement in which the light spot moves parallel to the slit was abandoned in favour of one in which it moves transversely to the slit. The present arrangement offers advantages on the score of sensitivity, since by throwing on the plane of the slit a triangle whose edge makes an acute angle of intersection with the slit, a smaller

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

movement of the galvanometer suffices to change the length of the illuminated portion of the slit from zero to 100 per cent.

Another important advantage is that the system becomes readily adaptable to making various types of track. With a single sloping edge intersecting the slit, we can get the original unilateral track. If the light spot is a triangle with the vertex normally at the middle of the slit, we get a symmetrical track. Two triangles, one on each side, with vertices pointed in opposite directions, produce a push-pull track. If the triangles are so positioned that their vertices cross the slit simultaneously, we can produce a Class B push-pull track.

In all cases the triangular opening does not stop at the base of the triangle, but an additional rectangular area is provided, adjacent to the base of the triangle. This prevents a very objectionable distortion which would otherwise occur whenever, because of overload, the base of the triangle crosses the slit. By putting in a mask which produces a black triangle on a white background we can make a direct positive ready to play without resorting to a printing operation.

If the light source is uniform in brightness from top to bottom, a horizontal edge suitably located between the condenser and the galvanometer casts a shadow on the plane of the slit which varies at uniform rate from zero to 100 per cent brightness. The movements of the galvanometer move this graded shadow or penumbra up and down, and the intensity of the slit image on the film varies in accordance with the galvanometer deflection. This provides for making variable density records.

Orthochromatic Emulsion: See Emulsion, Orthochromatic.

Oscillograph: See Sound Recording Variable Area System.

Out of sync: When the performer's lip movements are not synchronized with sound on track. It can result from bad editing, or incorrect threading in projector.

Oxidization Products: See under Gevacolour Process.

P

Pace: The rate of delivery.

Pan: To turn the camera from left to right or right to left while taking a shot.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Pan Blur: Quick pan which blurs the scene beyond recognition.

Pancake: A moveable platform used to increase the height of a performer or an equipment.

Panchromatic Emulsion: See Emulsion Panchromatic.

Parallax: Refers to the differing view between the ground glass of the scene and that on the view-finder of the camera.

Parallel Action: A common form of film narrative in which events are represented as taking place simultaneously in different places by cutting from one to another.

Parallelism: See Relational Cutting.

Paravision: Third-dimensional system developed at Paramount Studios.

This system requires two cameras and two negatives to achieve the third-dimensional effect. Special theatre screen and special synchronization facilities also will be required. System has advantage that Paravision films can also be shown in conventional two-dimensional form.

Participation Shot: Scene in which the spectator associates the camera eye with the eyes of a character in the story.

Peaks: Describes high points in the variations of sounds. When these are too great it is difficult for the engineer to maintain a smooth recording.

Peripheral Vision: This is another term for side vision of the amount one sees on each side, when looking straight ahead. It was realised that the average human has not one but two eyes, and the way our eyes are fixed in our head with the eyelids on, gives us a curved view of the world around us—a sweeping arc of 160 degrees and 60 degrees high. If a picture covering that same area were projected on a curved screen, any one watching it would feel as if he was right in the centre of it. The trend towards wider screens is therefore in the direction of more material viewing in that it makes for greater use of peripheral vision than heretofore.

Phases of a story: See Story, Phases of.

Philips Colour TV. System: See Television system, Philips Colour.

Philips Vidicon Camera Chain: See Vidicon Camera chain (Philips).

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Photographic Exposure: See under Exposure.

Photographic instrumentation: The use of the photosensitive medium for the detection, recording and/or measurement of scientific and engineering phenomena. Photographic instrumentation thus includes the apparatus, the techniques, the processes and the applications in scientific endeavours.

Photography: Photography is the art of obtaining the representation of objects by the agency of light upon sensitive substance.

Photography (Colour) and Colour Temperature: See Colour Temperature in Colour Photography.

Photorama: This is a system of wide screen presentation. Hanover, a Philadelphia projectionist, who invented this Photorama, claims that his system produces an effect of greater depth, with a picture taken by a single conventional camera and without the audience using viewers.

Hanover's screen system works as follows. The theatre screen is first curved on its horizontal axis, and then the centre portions of the screen are curved back on its vertical axis. The result is that the centre portion of the screen is bulged towards the projection lens. When a picture is presented on this screen, the centre portion of the screen is surrounded by areas which incline away from the lens and the end portions tend to curve towards the lens.

The Photorama process uses a special projection lens which has a progressively increasing focal length, measured from the centre to the periphery of the lens, as the screen used has both a curve and a bulge. It is felt that when the screen is curved, the central bulging portion, and the curving end portions, will be nearer to the projector than the portions which curve away from the central and end portions. The differences in the distances of the various portions of the screen create an illusion of perspective in that the object, at either of the ends or the centre, will appear nearer to the eye. In other words, by merely projecting various parts of the image on various parts of the screen, which are not in the same plane, the parts of pictures will themselves appear to be in different planes, and it is claimed that the transition from one plane to another is very gradual and an impression of continuity and depth will prevail.

The out of focus condition, in some portions of the screen, due to its curve and bulge, can be remedied, by using a lens portions of which have varying focal lengths, according to the dis-

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

tances between the parts of the screen and the corresponding portions of the lens.

Physical Characteristics: See Lighting (Indoor).

Picture-Values: See Values of the picture.

Pilot: A sample film or programme for demonstration of what a series will consist of.

Plastic light: See Lighting (Indoor)

Plastorama: See Garutso-Plastorama-Films.

Platter: A record.

Play back: (1) First a song (only sound) is recorded and at the time of picturising the scene, the recorded sound is reproduced by a special playback machine. Artists appearing before the camera pretend as if they are singing the same particular song and give correct lip-movements. Actually it is a borrowed voice. In editing, the picture film and sound track is synchronized and joined shot by shot.

(2) Photographing technique, whereby lip movements or action is filmed to synchronize with existing pre-recorded sound.

Play back singer: One who sings song for playback purpose.

Plot: A plot is the entanglement of incidents. It is not a story. The story can be told in fifty words, but the plot may take three thousand. Plot is not to be confused with situation.

Plots, basic: See Basic Stories or Plots.

Post Synchronisation: Sound and dialogue made to synchronise with the film after the silent images have been photographed and edited.

Principles for Children's Films: See Children's Films.

Printing: Exposed picture negative and exposed sound negative should be printed keeping the distance of nearly 19½ frames, to suit the arrangement of the picture light and sound light in the projector. This is done in the laboratory. In the case of 16 mm. film the difference is of 26 frames.

Printing Equipment, Ansco Colour Film: See Ansco Colour Film-Printing Equipment.

Printing machines: The production of printing machines may be divided into six main groups:

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

(1) Intermittent, or step by step, contact printers.
(2) Intermittent, or step by step, optical printers.
(3) Continuous rotary contact printers.
(4) Continuous rotary optical printers.
(5) Continuous rotary contact printers to printers.
(6) Continuous rotary contact printers to print both picture and sound.

Procedure for Magnetic Loops: Tremendous reduction in the cost is anticipated by the use of recording on magnetic loops. Instead of breaking the picture down into loops of assorted sizes, all the loops will be cut to a few standard lengths, down to an exact number of sprocket holes. This can easily be done by adding blank leader when necessary. A number of magnetic loops are then made up to these exact sizes. The recording machine is equipped with a loop magazine, which permits convenient handling of the loops. With this method it is easy to make as many takes as neeessary in order to get as nearly perfect a take as possible, without wasting a single foot of photographic film. As soon as a good take is obtained, it can be played back immediately in synchronization with the picture, and as many times as desired, without even the need of stopping the film. If it is adjudged a good take, it can be immediately transferred to a photographic recorder which is always standing by ready to roll, right alongside the magnetic recorder.

Processing Tanks: The processing tanks consist of five water tight compartments comprising, (a) The developing tank, which is nearest the splicing table, and has a capacity of 36 gallons and holds six film racks, (b) The two fixing tanks, 13½ gallons each and hold two film racks. The developing and fixing tanks each contain a coiled stainless steel tube used to circulate heating or cooling water through the tanks. The circulating pump is connected with the developing tank and, to avoid possible corrosion, is fitted with a wrought iron rotor and a monel-metal spindle. A series of valves are fitted between the pump and the processing tanks to enable the pump to be used for the following three purposes: (1) To circulate the developing solution while processing is being carried out, (2) to pump the original developing solution from the chemical mixing room into the developing tank, and (3) To pump the developer replenishing solution from the chemical mixing room to a storage tank situated above the processing machine. All the tanks are provided with a large drainage pipe and outlet valve.

Producer: (1) Person responsible for the complete production of

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

any screen production. He should be a two-sided individual—a shrewd businessman and at the same time a sensitive creative artist. He must know how to harness and exploit the talents of his writers, set designers, performers, cameramen, editors, musicians etc. He must know what the audiences want and how best to satisfy their appetites.

(2) Who plans out the entire production, selects a story, hands it over to a proper director, finds out music director, employs suitable artists and presents the finished picture. His is the best word in every branch of the production. It is shame that generally the term is misused, as one who does not know ABC of the picture production, but gives his money, is known as the producer, actually producer's job is very responsible and manifold.

Production Manager: The individual in charge of the production. He is responsible to manage everything according to the requirements of the director, throughout the shooting of the production.

Projector, Optical-Magnetic Sound—16 mm.: The task of recording sound on 16 mm. film has been a job for the engineer and the most aggressive amateur. With the advent of successful striping of 16 mm. film with magnetic coating, synchronized sound with picture is now a reality for a greater number of people. The instrument RCA-400 has been designed to record, reproduce and erase magnetic sound track, as well as to reproduce photographic sound track of 16 mm. film.

This projector actually performs four functions: (1) It reproduces photographic sound track; (2) it erases and records magnetic sound track; (3) it reproduces magnetic sound track; (4) it can be used as a public address system.

Properties: Things, like flowers, furniture, etc. needed for a film scene.

Pull Back: Shot which re-establishes a scene after series of close shots.

Purpose of films: (1) Entertainment, (2) Information, (3) Propaganda, (4) Historical record, (5) Education.

Push-Pull Track: If the track is divided into two equal strips and the light is modulated oppositely on the two sides of the middle, it may be reproduced by a system in which the light that passes through the film is picked up by 2 photocells, which are oppositely connected. Several types of distortion are substan-

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

tially reduced by applying a push-pull system, especially those which produce even harmonics and rectification effects.

Push-pull systems have been widely used for making original recordings where the utmost in quality is justified even at the cost of greater complication in the recording and reproducing equipment. Many of the push-pull systems which have been used in recording-studios employ double-width track. This results in an improvement in the ratio of useful sound to ground noise. (See also optical Recording System.)

Push-Pull Track B: The left side of the track carries only the negative halves of the waves, and the right-hand side the positive halves. Careful adjustments are required in which the characteristics of the film emulsion and developer have to be taken into account in order to balance and adjust the system so that no distortion occurs at the point of transition between positive and negative half-cycles. A hairline extension of the vertex of the triangle makes the adjustment for transition less critical.

The class B track is inherently the freest from ground noise of any of the known types of photographic sound record. For this reason it is finding much use for making original recordings (for subsequent re-recording to standard track.). The ground noise advantage of the Class B Track is carried still farther if it is recorded as a direct positive. (See also Optical Recording System.)

Q

Quick-Fire Cameras: Cameras equipped with special mechanism for winding on the film and resetting the shutter practically instantaneously, so allowing exposures to follow one another very rapidly when required. Quick-fire cameras generally use 35 mm. cine film as negative material.

R

Rack over: In timing up scene the lens or camera mechanism is moved aside so cameraman can see the scene as it will be taken through the lenses, and from this adjusts his view finder. This action is the rack over.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Rain, how to create: Many art-directors favour building vast grids of 2 in. iron barrel that zig-zag the set and that have fine perforrations 1 in. apart on top. A hose-pipe is harnessed to either end of the zig-zag and more of less pressure added according to the extent to which the coks are opened.

Receivation: See under Television.

Recording Equipment (Portable): See Magnetic Recording Equipment (Portable).

Recording; Optical System: See Optical Recording System.

Recording Variable-Density System: See Sound Recording Variable Density System.

Recordist: The recordist sits in a windowed chamber, in the roof. Often he cannot see the actions. He listens, as the voices of the players come over the wires. Before him is a machine, decorated with knobs. He turns them gently this way and that to soften or highten the effects. Picture production is largely in the hands, or rather, in the microphones of the recordist. His is a vital department.

Reduction print: Positive film 16 mm in width made from negative 35 mm. in width.

Reel: Film is measured in reels, 1000 feet (35 mm. standard). 400 feet (16 mm. substandard) and 300 feet (9.5 mm. substandard). The playing time of a reel of any gauge is about ten minutes.

Relational Cutting: Various devices can be used to heighten the effect required:

A) *Contrast*: Shots of starvation cut in with shots of gluttony.

B) *Parallelism*: This is a development of contrast. Pudovkin's illustrations uses the situation of a condemned worker under the old regime and a drunken, callous factory-owner. The condemned man is to be executed at 5 a.m. Scenes of preparation in the prison are timed, not by the prison clock, but by the wrist-watch of the capitalist as he lolls in untidy drunken sleep.

C) *Symbolism*: In Pudovkin's film "Mother", the procession of the strikers advancing to meet the White cavalry is symbolised by cutting-in shots of a huge ice-flow breaking itself against the parapet of a bridge. The movements are carefully related in speed.

D) *The Simultaneous Cutting*: Cutting with increasing tempo

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

from the growing plight of the victim to the dash of the rescuer. Used by Griffith.

E) *Leit-motif*: (*Reiteration of theme*): The repetition of the same shot in a film to emphasise a theme.

Release print: Final composite prints, correctly timed, ordered in quantities, usually specially treated to give long wear in projectors.

Replenisher pump: This instrument is used to dispense with the flow-meter (See Flow-Meter) and its attendant drawbacks.

Research Films: Research films are the highest form of teaching films for specialized classes of research workers, teachers, scientists, doctors, engineers,—containing information of an advanced kind on anthropology, sociology, physics, biology, history, etc. Such films are called visual monographs.

Research Officer: His duty is to keep the director supplied with essential information on any subject. Research officer must be ready at all times to supply information on any subject within human knowledge. Generally this post is abused as the higher authorities do not know how to utilise the talent of the Research Officer.

Re-take: Repetition of a take.

Reverse motion: Photo technique showing a performer doing everything backwards; used to achieve comic effects.

Reverse shot: To show the reactions of different characters in a dramatic or romantic scene, this shot is used.
First shot is over the hero's shoulder focussed on the heroine's face, and the next shot is over heroine's shoulder and focussed on hero's face.

The reverse shot of A looking at B is a scene of B looking at A. (See Shoulder Shot).

Rhythm: Rhythm is a regular or harmonious beat or accent to movement, or sound; movement or sound marked by some regularly recurring accent or quantity.

Roller title: Photo method whereby type of title moves from bottom of screen upward and off as the viewer reads it. Used for lengthy title. Called a "Crawl title" in TV because it is rotated slowly.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Rotocolor: Rotocolor is a system beginning with a camera and an optical printer of radically different design.

The Rotocolor camera photographs pictures on their "side". The 16 mm. Kodachrome film travels horizontally instead of vertically as in all other motion picture cameras now in use, thus obtaining a picture more than twice the usual 16 mm. image size. In fact, the image needs but slight enlargement to the standard projection aperture in the Rotocolor Optical Printer, resulting in the highest quality yet utilizing the lighter weight and safety factor of Kodachrome or similar colour stock.

In the Rotocolor Optical Printer as in the camera the original 16 mm. Kodachrome moves horizontally, while the 35 mm. film (or films) travels in the conventional vertical. Sixteen mm. prints or negatives are reduced in the same manner.

At sound speed of 24 frames per second, conventional 16 mm. cameras pull film past the aperture at 36 feet per minute, the 35 mm. cameras at 90 feet per minute. In the Rotocolor camera 16 mm. film produces 24 frames per second at the rate of 72 feet per minute. For example 900 feet of 35 mm. pictures on 720 feet of 16 mm. Kodachrome Safety Stock. The saving in cost and weight is considerable.

Rough cut: First and overlength assembly of shots into a work print arranged into their proper sequence.

Rough Cuttngs: See Cutting rough.

Rushes: (1) Lengths of processed film before editing, which are usually viewed by the director and unit immediately they are returned from the laboratories.

(2) First prints of scenes usually projected daily for approval of various authorities.

S

Safety Base: See Flms, physical properties of Agfa etc.

Safety film: Film made with a slow burning acetate base.

Safety Film: See Films, physical properties of Agfa, etc.

ScanaScope: See Wide Screen processes.

Screen Techniques, Wide: The function of a theatre screen is to reflect the illuminated image projected upon it, with the maxi-

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

mum efficiency, the minimum amount of colour distortion and the best possible distribution.

For half a century, motion pictures have been projected on to a rectangular white screen, in the proportion of 3:4 established by Thomas A. Edison, surrounded by a black border. In the early days of motion picture projection, the black border was a necessity because picture brightness and equipment vibration presented problems. Low light production and transmission, restricted image dimensions. The black masking was used as a means to absorb vibration, and at the same time to increase the relative brightness of the projected picture. Thus the black border became a permanent fixture, its necessity questioned occasionally but never effectively challened until 1935-36 when the screen brightness committee of the S.M.P.T.E. started studies and came to the conclusion that large dark masking areas surrounding the picture on the screen served only to increase glare and to produce eye fatigue. Thereafter in September 1951, the S.M.P.T.E., published a new symposium on the exploitation of screen viewing factors. Series of tests were conducted to determine the brightness for the screen, the screen borders, and the surrounding areas, and these tests sounded the death knell to the black masking as there was a unanimous decision opposing it. It was also generally agreed that the area around the picture surround should have a brightness equal to half that of the area bordering the image. For a clear screen brightness of 10 foot lamberts, the border should have a brightness of 0.5 foot lamberts, and areas beyond the border should be illuminated to a brightness of at least 0.25 foot lamberts.

Various means have been suggested to achieve the above effect, and the notable among them is the RCA synchro-screen developed by the famous theatre architect, Ben Schlenger.

Genuine wide screen methods are obtained by different ways and means, and the notable among them being:

(1) Through the use of a battery of cameras and projectors as in Cinerama,

(2) Through the use of an Anamorphic Lens as in Cinemascope,

(3) Through the use of a wide measure film,

(4) Through the use of a very wide angle lens,

(5) By cropping the standard pictures, at the projection aperture plate through the use of masking.

Scenario: The story of the film in its final form, from which the director works during production. It usually contains a detail

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

description of the action shot by shot, together with settings and camera position.

Scenario Writing Problem: There are six problems to think of for the scenario writer: (1) Deciding the structure for the story, (2) Treating the story for sound and for action, (3) Making use of camera, (4) Proper use of dialogue, (5) Possibilities of tempo and rhythm, (6) Avoiding common faults.

Scene: A piece of action which appears to be continuous on the screen though it may be composed of a great many shots.

Screen Time: Time taken by a scene when it is projected on the screen is the screen time of the scene.

Screen Time, a Rule of: There is no fixed rule, but more screen time must be allowed to emphasise the highlights of the story.

Script: A script turns a charade into a film. Script work keeps the movie-maker's interest from evaporating, because it brings results and applause. It may be work, but it is work which is a part of the game, and which can turn the game into an art.

Script is the plan for a film as it is written down on paper. The script turns filming into creative activity. It provides the essential descipline for the movie-maker. It is a construction of a film.

Script, the Basic Material of: Movement is the basic material of the script. It must be selected for its significance. Any and every movement will not build a film.

Script, running time of a: Though there is not hard and fast rule, it is estimated at the rate of about one minute to the page typed on the right hand side (half portion) of a sheet in double space.

Script Writing for Television: See Television Script Writing.

Script Writer: Script Writer is a person who writes a script for making a film. When writing the script one should think about the comfort and entertainment of future audiences. He has to study construction, balance, timing and economy as used by good writer of fiction. Script-Writer should never forget that the cine camera was invented to record movement. His job is to tell a story compellingly to use telling movement in shots which focus the attention. He has to recognise the economy, understand it and use it. But he should not be economical with

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

economy, when economy means holding interest of the audience.

The script writer's freedom is largely based on the fact that a film need not be photographed in the logical sequence of narrative in which the manuscript is written. He has to number consecutively the shots in his script, so that ultimately the shots can be assembled in the numbered order. Whenever he introduces a panning or a travelling shot, he must believe he is justified by the story telling laws of balance, timing, and economy.

The script writer thinks of movement in the film, of the film or of the camera as movement matched by that of the audience's thought, and not as movement desparately trying to entertain by camera acrobatics. It is not obligatory for the script writer to have an exhaustive knowledge of camera angles, but he should cultivate thinking of shots as lens sees them, because camera angles are the most useful accents for the script writer.

He tries to make audience feel they are watching and sharing an experience and makes them forget they are seeing the film with the eye of the camera.

Script writer (Documentary): See Documentary Script Writer.

Script Writer's Freedom: See Script Writer.

Semi Silhouette Light: See Lighting (Indoor).

Sensitometry of Colour Materials: The methods of sensitometry of colour materials and processes are specialized developments of the methods of black-and-white sensitometry. The nature of the individual material and its intended use govern the specifications of the operations of exposing, processing, density measurement, and interpretation of results. Apparatus and techniques now available are adequate for important applications of sensitometry in the manufacture and use of colour materials.

Sequence: The sequence is the paragraph of the film. It may consist of a few shots naturally linked together and lasting only a minute, or it may plan out an almost indefinite length of time, when the scene remains the same and the characters are hardly regrouped for a considerable period.

A sequence is not exactly like a part, as in a novel, or an act, as in a play. Part one in a novel may embrace what would in a film be several sequences.

Set: Artificially constructed setting used in a film.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Set dresser: Person responsible for the placement of all properties on the set in their proper positions, and for the decoration of a set.

Set, Plan and Elevation of: Art Director should make a big sheet of reminders as follows:—

1) Exterior wall surface: (1) Stone. (2) Brick. (3) Plaster. (4) Wood.

2) Interior wall surface: (1) Patterned paper. (2) Plain Paper. (3)Panelled. (4) Tapestry. (5) Moulding. (6) Plaster.

3) Ceiling: (1) Plaster. (2) Canvas. (3) Felt.

4) Floor: (1) Planks. (2) Cobbles. (3) Stone. (4) Paper. (5) Painted Hassian.

5) Painting: (1) Texture. (2) Colours. (3) Blowing.

6) Backings: (1) Painted. (2) Photographic. (3) Drapery.

7) Windows: (1) Practical. (2) Glass. (3) Exterior Wall, and sill.

(1) Water effects, (2) Smoke effects, (3) Other practicals, cobwebs, etc., (4) Curtains, (5) Illuminations etc.

Shooting: Photographing a scene.

Shooting report: There are two shooting reports: one for picture and another for sound. The record of shooting is maintained, by the cameraman and the sound recordist, of every shot, taken during the shooting. In the specific form there are several columns for the name of the production, name of the company, name of the director, date, time of shooting starting and finishing, sequence No., scene No., shot No., kind of shot, footage of each shot, N.G. or O.K. etc. The shooting reports are signed at the end of the day's work and a copy of the same is sent to the laboratory along with the exposed film. Notes and remarks about the movements of players and continuity etc., are also written in this report.

Shooting Schedule: See Film Making.

Shooting Script: Detail Scenario ready to be followed by a director at the time of shooting.

Shot: (1) Films are made up of a series of moving pictures, taken in different places and at different times. Each piece of film taken while the camera is running continuously is called a shot.

(2) It is a part of the action recorded on film with the camera running or appearing to run continuously. A film sentence. (See under camera positions).

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Shots assembling: Shots should assemble in such a way that our attention is held and led in very familiar fashion. They must be logically assembled by a consideration of the way in which an onlooker would use his eyes were he viewing the scene in real life.

Shoulder Shot: A shot taken from above the shoulder. The rule is, if A and B are facing each other, and a close shot of A is taken from B and behind B's right shoulder, keeping B in the foreground, then the next close shot of B must be taken from behind A and A's left shoulder keeping A in the foreground.

Sight and Hearing: See Light waves and Sound waves.

Silhouette: Rendering of objects as masses of dark tone with clearly defined outlines.

Silver Recovery unit: This is a plant used for extracting all the silver that is regularly going into solution in a processing machine. When an available cathode area of approximately 4 sq. ft. and a current consumption of from 12.15 Amps., the unit is capable of extracting nearly .08 lbs. of silver per hour.

Single System: Camera and recording device which record sight and sound on same film simultaneously.

Single Strip: See Films, colour—Eastman Colour Negative Film.

Sizes of Films: See Films, Relative Sizes of.

Slide films: Series of 16 mm. or 35 mm. still pictures arranged in sequence and projected frame by frame on screen. Sound slide film has narration on disc or tape which is cued to frames projected on screen.

Slit Dimensions and Angles: See Angles and Dimension of Slit.

Slow Motion: The trick of filming with the camera running abnormally fast so that when the film is projected at normal speed the action is slower than it was in reality. Opposite of fast or quick motion.

Sluges: See Leader.

Smoke making: See Fog making.

Sneak in: To bring in music or sound effects softly and then increase the volume.

Snow: For falling snow, very small feathers are some times used as they fly about very effectively when two or three small elec-

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

tric fans are placed around the set. For snow on the ground, marble dust is used and to get glistening effect little Naptha may be sprinkled on the top.

Society, Cildren's Film: See Children's Film Society.

Soft focus: Shooting subjects slightly out of focus to gain a lazy effect.

Soft-Focus Attachment: See Attachment, soft focus.

Sound characteristics of: Any sound contains two primary characteristics, (1) Frequency and, (2) Volume. In sound film recording the frequency is obtained by changing the amount of light which strikes the film. The volume is represented by the magnitude of these changes.

Sound effects: Recordings and devices used to produce necessary sounds.

Sound Engineer: One who operates or monitors or looks after the sound equipment.

Sound Film: Sound Film—at any rate real sound film—is not a verbal masterpiece supplemented by pictures, but a homogeneous creation of word and picture which cannot be split up into parts that have any meaning separately.

Sound Recording: Sound is registered on a separate strip of film in a separate "sound camera", the vibrations being recorded in the form of a track by (a) the variable density method, by means of which varying quantities of light passing through a slit imprint a series of lines of differing width and density across the track, or (b) the variable area method, in which moving masks or other devices cause the area of exposed film across the width of the track to vary. In the final "married" print the narrow sound track appears alongside the pictures.

In the process of sound recording the sound travels through the following way, from the mike to the sound film: (1) Mike, (2) Preamplifire, (3) Microphone mixer, (4) Main holtage amplifire, (5) Booster, (6) Electronic compressor, (7) High pass filter, (8) Low pass filter, (9) Dialogue equalizer, (10) Film loss equalizer, (11) Recording amplifire, (12) Recording Galvanometer.

Sound Recording, Direct: See Direct Sound Recording.

Sound Recording and Duplicating: In the major picture productions most of the original sound recordings are re-recorded after editing. This permits mixing sound effects, adjustment

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

of levels, and altering, if necessary, the tonal balance by means of electrical compensating circuits as, for example, reducing the low-frequency components of abnormally heavy voices.

The only way to obtain new picture negatives is by printing to a positive and back to a negative. The same process is sometimes applied to sound records as, for example, to make films for printing elsewhere and in case of export. Special duplicating film emulsions are employed, and the processing for best results has been the subject of much study. Good results can be obtained from good originals, provided the printer does its part well.

Sound Recording Equipment, Magnetic (Portable): See Magnetic Recording Equipment (Portable).

Sound recording and reproduction, Improvements in:

a) Centering scanning beams by Buzz-track control.
b) Volume expansion and sprocket-hole control track.
c) Ultra-Violet sound recording and printing.
d) Constant speed sound Drives.
e) FANTASOUND.—(See Fantasound).

Sound Recording, Single System: Ordinarily separate film is used for picture and sound. But in this system only one film is used for picture and sound. Auricon Pro is this type of camera for 16 mm. film and now Mitchel camera also is available for 35 mm.

Sound Recording, Sixteen Millimeter: Sixteen Millimeter film travels only 40 per cent of the speed of 35 mm. film. This means that the waves must be compressed longitudinally and only with utmost refinement can reasonably good high-frequency response be obtained from 16 mm. film. Actually we are forced to be satisfied with considerably lower standards than we expect from 35 mm. film. Packing the waves into a shorter length of track increases the tendency to cross-modulation. The methods of control of cross-modulations are (or should be) essentially the same as in the case of 35 mm. tracks, except that the modulated high-frequency wave has usually been taken as 4000 or 6000 cycles instead of 9000 cycles.

The problem of constant speed is also rendered much more difficult by the law average speed of the 16 mm. film.

In the most successful large-scale production of 16 mm. prints, it is common to employ some compression when making the negative, to improve intelligibility, and low-pass filters are employed to eliminate some of the higher frequency components which could scarcely be successfully recorded if present.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Contact printing is at present the general method, but excellent results have been obtained with optical reduction printing.

Sound Recording System — Maurer 16 mm.: The Maurer 16 mm. Sound recording system is designed to produce professional quality sound-on-film with a minimum experience requirement on the part of the operator. Although designed primarily for studio work, the Maurer Recording System lends itself very easily to location recording because of its easy portability. The entire Maurer Recording System can be set up ready for operation within ten minutes.

Sound Recording, Variable Area System: Variable area recording system may be considered to be an outgrowth of the Duddell oscillograph, in which tiny galvanometer swings a spot of light back and forth across a moving film and traces a picture of the wave shapes of the electric currents sent through the galvanometer. The cylindrical lens near the film serves to make the light spot smaller and more intense, and serves to confine the light reaching the film to a narrow line, so that a mask with a very narrow slit is not necessary. In the oscillograph, pains are taken to make the light spot small in both directions so as to trace a sharp line. This is done by making the light source itself small.

By using a larger light source, we can elongate the light spot on the film until its length exceeds its total amplitude of travel. The oscillograph would then make a record whose edges are pictures of the wave shape. Such an oscillogram can be used as a variable width sound record by simply scanning either edge by itself.

The optical system used in variable-area sound recording, is essentially the same as that of the oscillograph except that instead of throwing the light spot from the galvanometer directly on the film, it is projected on a slit-plate of mask, in which there is a narrow slit, and the slit is imaged on the film in reduced dimensions by an objective lens. If a film pulled through the device, directly behind the slit, we would obtain a large record of the wave shape. Since the purpos of the recording optical system is to produce a track, only one end of the light spot falls within the slit length, the other end being masked off.

The ordinary oscillograph has been developed to produce rather large scale traces of wave shapes. The sound track requires that the wave trace be of microscopic dimensions. The system in which the modulated light is thrown on a slit of convenient size and then a reduced image of the slit formed on the film,

Digitized by Arya Samaj Foundation Chennai and eGangotri

lends itself to production of small-scale images of finer quality than could readily be obtained by the direct system, particularly since lenses of extraordinarily high resolving power have been developed for microscope objectives.

Sound Recording, Variable-Density Tracks: Making a variable density record calls for either employing a lamp whose brightness can be varied at audio frequency, or employing some optical device by wich various fractions of the lamp output can be absorbed or diverted. Even under optimum conditions it has not been found possible to change the brightness of incandescent filaments with the required rapidity for sound recording; hence all variable intensity light source recording has been done with lamps of the gas-discharge type.

Mercury lamps were among the first to be used, but under the conditions which give the extreme high brilliancy of which mercury arcs are capable, the luminosity does not fall rapidly enough when the current decreases for satisfactory modulation, while at low pressures or intensities the advantage of mercury vapour over other gases is not great.

The mot successful glow lamp is known as "Aeolight" and was developed by the Theodore Case Laboratories at Auburn, N.Y.

Nitrobenzol has the property of rotating the plane of polarization of light through an angle which increases with the strength of a transverse electric field. If a cell of nitrobenzol is placed between crossed polarizing prisms, no light is transmitted until an electric field is applied to the nitrobenzol, and the amount of light increases with the size of the angle of rotation up to the point of 90 degrees rotation.

The Carolus Cell, or Kerr Cell, as this device is called, is one of the fastest known means of modulating light, so there is no question about getting adequate high-frequency response. However, the high voltage required, the discolouration of the liquid, geometrical limitations which restrict, the amount of transmitted light and, most of all, the nonlinearity of the characteristic, have contributed to the abandonment of the Kerr Cell as a sound recording device.

Starting with a constant source of light such as an incandescent lamp, the exposure of the film may be modulated by either varying the size of an opening through which the light must pass, or by employing a reflecting galvanometer.

The variable-sized aperture method is represented by the Western Electric "Light Valve." The condensing lens system concentrates light on the valve, and the light which passes through

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

the opening is focused on the film by objective lens. The variable-sized slit is a narrow opening between the edges of two stretched metal ribbons which carry the recording current in one direction through the upper ribbon and back through the lower ribbon. A strong magnetic field is provided, parallel to the optical axis, and the audio currents cause the ribbons to approach and recede from each other, thus widening and narrowing the slit between. In order that the ribbons may not actually hit they are slightly displaced axially, so that they are in different planes.

The slit is sharply focused on the film. It will be noted that the image on the film varies in width in accordance with the movements of the ribbons. Thus the variations in exposure are produced by changes in the time during which the film is passing through the illuminated spot, and not by variations in the intensity within the spot. The differece between varying the intensity and varying the time of exposure must be taken into account in any complete analysis of the performance of variable-density systems.

Sound Reproducing: A separate "sound head" scans the sound track. A small light in the sound-head projects light through the track, and the variations in the track from point to point cause varying quantities of this light to pass onwards to a light-sensitive cell. Here the tiny current which is generated is passed through an amplifying net work, and is finally used to actuate a system of loud speakers, from which sound emerges into the auditorium. The loud speakers are placed behind the screen so that the sound appears to emerge from the picture on the screen.

Sound Track: See Description of Sound Track.

Sound, Ultraviolet Recording: It was found early that the highly sensitive films used for picture negatives do not make the best material for sound recording. The kind of film used for prints has a much finer grain and higher resolution. The difference between making a sound record with the desired minuteness and perfection of form with coarse and a fine grain film might be compared to drawing a picture on a surface on which some coarse sand had been dusted as compared with using a smooth paper with fine pencil. The price for using the finer grain films is that more exposing light must be used. Fortunately this has been possible while still adhering to the highly satisfactory incandescent type of lamp, progress having been greatly helped by improvements in lamps, and by new film emul-

CC-0. In Public Domain. G

Digitized by Arya Samaj Foundation Chennai and eGangotri

sions which in increasing measure combined fine grain and speed.

One of the most important steps in the direction of producing finer and more accurate images in the sound track was the resort to ultraviolet light. Much of the imperfection in photographic resolution is caused by the scattering of light within the emulsion, so that the exposure spreads sidewise as well as through the emulsion. Ultraviolet light is rapidly absorbed in the material of the emulsion, with the result that it does not diffuse as far into regions outside the boundaries of the areas actually exposed. The low penetration also prevents any impairment of the image by reflections from the back of the film. The lack of penetration must be compensated by increased intensity of the incident light. The result is an image in which the developed silver is concentrated close to the exposed surface and is likewise more nearly limited to the area of direct exposure. There is a further advantage in that lenses of greater resolving power are possible with the light of shorter wave length. In "single-film" systems, in which the sound is necessarily recorded on the same film as the picture negative, the use of ultraviolet light has contributed in a major way to improvement in the quality of the recorded sound.

Within recent years new fine-grain films have been made available giving much finer resolution than the previous recording stocks. The results are reduced distortions and better reproduction of high frequencies. Ultraviolet light may also be employed to advantage when recording or printing on fine-grain films. High intensity mercury lamps have contributed in an important way to the solution of the problem of obtaining adequate exposure for printing on slow films, especially if ultraviolet light is wanted.

Sound Wave: The life of a sound wave is fast but short. It is quickly born and it quickly dies. It has many moods and forms, from the terrifying clap of thunder to the whimper of a baby.

Scientists have given names to the various forms of a sound wave. When it is repetitious it is known as pitch and have musical quality. When its pitch is smoothly undulating it is told, it is pure and sinusoidal, but when its undulations have slight quivers, jerks or sharp edges, it is complex and full of harmonics. When it lacks repetitiousness it is merely a noise. It is affected by every vagary of the atmosphere. It is sensitive to heat and cold, dry air and moist, altitude, density, terrain, wind, and every invisible wistful current that circulates over the face of the earth.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

At one time during your school days you were told, it behaves as much as a stone dropped into still water, sprading out in beautiful concentric waves. The truth is, it is nothing like that. It does not enjoy such simple serenity, because in its outward travels it encounters many obstacles. It is tossed about, diverted from its course, parts of it are torn off, or destroyed. It is seldom it arrives with the form and vitality with which it starts. Sometimes its travels are filled with adventure and drama.

Sound Waves: See Light Waves and Sound Waves.

Space Time Problem: It is complicated by six considerations :

1) Transition: Being the technical devices provided for marking the succession of one scene by another.

2) Camera: Being the variety of effects produced by manupulation of the motion picture camera.

3) Dialogue: Being the manner in which speech, natural sounds and music are related to photography.

4) Mobility of narrative: Being devices available to the film writer for the speeding and pointing of action.

5) Audience contact: Being the circumstancer that a film comes to life only when it is seen and appreciated by many millions of film-goers.

6) Characteristics of Narrative: Being the principles to be observed in telling a story within the space time of a film.

Special Effects: An illusion, either realistic or fantastic, introduced into a film by means of a technical trick.

Speed of the Camera: Speed of the camera of the 35 mm. talkie film is 90 feet per minute; 1½ foot per second, (24 frames). Speed of the camera of 16 mm. talkie film is 36 feet per minute, three fifth foot per second (24 frames).

Splice: A welded joined in film where one shot abutts on the next.

Split screen: Two different scenes on the screen at the same time, used largely to point up concurrent action at separated locales. Seeing both persons at both ends of a telephone conversation, is good example.

Spoken Titles: Dialogue rendered in the form of a sub-title.

Spoking: See Films, physical properties of Agfa Black and White and colour.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

S. S. T.: Short form of Silent Sound Track.

Start marks: Are put in film with wax pencil to indicate where picture and sound films are to be placed in the moviola or inter-lock projector to be in sync.

Stereophonic Equipment: Dr. John G. Frayne, is mainly responsible for the design of the stereophonic equipment first used by 20th Century Fox in the production of their picture in Cinema-Scope "The Robe", and he was given approximately 14 days' time in which to complete the project.

Stereo-Television: A standard Du Mont television pick-up chain was employed in the development of stereo-television. The stereoscopic pair of images are placed side by side by a twin lens system onto the photocathode of the television camera tube. The images occupy the same space on the photocathode as a single image in standard two-dimensional television and they are transmitted simultaneously. At the receiving end of the stereo-television system, the two images appear side by side on the face of a standard kinescope or television picture tube.

Two polarizing filters whose axes of polarization are at right angles to each other are placed immediately in front of the images on the cathode-ray tube. An observer wears a pair of polarizing spectacles so oriented that the right eye is permitted to see only the right-eye image and the left eye sees only the left-eye image.

A second method used to view the three-dimensional television pictures makes use of two television picture tubes. These tubes are arranged at right angles to each other and a semi-transparent mirror is placed so that it is at 45° with both tubes. Crossed polarizing filters are placed in front of each picture tube and the observer wears crossed polarizing spectacles. The observer is enabled to see the three-dimensional image by observing one image by transmission through the semitransparent mirror and the second image by reflection .

The present system of stereo-television using one camera pick-up tube, gives a stereo picture which has an aspct ratio of three high and two wide. This may be undesirable for use in any permanent installation. In addition, the field of view is restricted, and the resolution is adversely affected.

A more desirable system would consist of the use of two television camera pickup tubes arranged side by side in a horizontal direction. The left pickup tube would supply a left-eye view to one of the receiving tubes of the dual viewer and the

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

right pickup tube would supply the video signal for the second receiving tube.

Still: A photograph of a scene from a film or of technicians making it or of players taking part in it.

Stock: Film stock, the celluloid compound itself before exposure.

Stock shot: Footags not shot specially for the production but which exists in processed form and can be inserted into the production. Also known as "library shot."

Stop: See Diaphgrams.

Stop-motion: See Animation.

Stop motion: Photo process where picture is exposed frame by frame whereby inanimate objects are made to move by changing their positions for each frame. Used largely in animation.

Storage of Film Prior to Exposure: 'Eastman' Colour Print Film may be stored for periods of time up to three months at temperatures not exceeding 50 degrees F. without significant changes in its sensitiometric properties.

Storage of Raw Film: See Films, Storage of Cine; Films, Storage of Raw.

Stories, basic: See Basic Stories or Plots.

Stories of Children's Films: See under Children's Films.

Story, Balance of a: See Balance of a story.

Story Construction: The story, as far as structure is concerned, may be divided into three parts. (1) The Dramatic form or Play form, (2) Fiction form or Literary form, and (3) Synopsis form or Composite form.

The story is first divided into sequences, sequence into scenes and each scene is then divided into various shots.

Story, Economy of a: The stream-lining of the job of telling the story so that the audience's attention does not wander for an instant.

Story Factors: Prime factors in the construction of a story are: (1) Balance (2) Timing, and (3) Economy.

Story of a Film: The first essential in the film story is that it shall be simple. Plot complications may become screen ones. The most effective and memorable picture players have been those pursuing a straight forward course. A familiar device for

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

opening a picture is the surprise start. A story with a fine theme becomes a work of art as well as entertainment. Film story must have opening (beginning), middle, and end; plus brilliant dialogue, rich and true characterization, sympathy, humour, and action.

Story, Phases of: There are three phases of a plot or a story. (1) The premise, (2) The complications, and (3) The resolution. In terms of time the exposition of premise is about one sixth the playing time of picture or TV programme. Two third is given over to the various complications—and one sixth to the resolution of a story. The complication is the main body of a picture or TV programme.

Story, Speed of the: There are three speeds of the story: (1) Rapid, (2) Moderate, and (3) Leisurely.

Story-telling systems: There are two systems of story-telling: (1) Straightforward: to start the story at one point and without turning back going forward. (2) Switch back or Flash back: i.e., while telling the story, coming back for earlier events.

Story, timing of: The introduction, at precisely the right moment, of the different elements of the story.

Story Writer: The creative work of a story-writer is the life-blood of the motion picture. For an inexperienced writer, however brainy to achieve success as an outside contributor to the film-market means a wearisome, perpetual grind, a string of bitter disappointments. Only the stout hearts can win, only those natures which can thrive on failure, which find new inspiration in set-backs, can carry through to the desired end.

Subjects for Children's Films: See under Children's Films.

Subjects Objectionable: See Objectionable Subjects.

Sub-Standard: Sizes of film stock smaller than that used in commercial cinemas, which is thirty-five mm. wide. There are three sub-standard sizes: 16 mm., 9.5 mm. and 8 mm. Sub-standard stock differs from 35 mm. in that it is non-inflammable. It is therefore free from licensing restrictions and can be projected in public halls, schools, rooms etc., which are not re-equipped with fire-proof projectors.

Sub-Standard Cinematography: See Cinematography Sub-Standard.

Sub-Standard Colour Cinematography: See Cinematography Sub-standard.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Subtractive method: The chief representative of this class is Technicolor. In its earliest subtractive form it was a two-colour process, the two negatives being obtained by means of a beam-splitting camera, the resultant dye-images being cemented back to back.

Today it is a three-colour process, the three negatives being obtained by a combiation of beam splitting and bi-pack. A gelatine relief image is prepared from each colour, and is known as a MATRIX. The matrix is impregnated with colour which is then offset by suitable methods on to a strip of film carrying only a gelatine coating. The three colour images are combined in this way and the matrices can be used a considerable number of times.

Subtractive Method: See Colour Film.

Subtractive printing: When printing is done with ordinary white light and all currection, that is, addition of a tinge of one colour or the other, is done by introducing filters in the path of the printing beam of light, supplementary in colour to the colour of the desired correction, it is called a subtractive printing.

Sub-Title: Explanatory printed matter, commonly incorporated in a silent film, either to replace dialogue or to bridge a gap in the story.

SuperScope: See Wide Screen Processes.

Surprise: Audience do not like to be tricked but they appreciate surprise.

Suspense: Suspense is the secret of mobility and the foundation of suspense is motive. Surprise should be as a substitute for suspense. Average distance between these points of suspense in the story may be 700 feet.

It is as vital as conflict. Suspense is interest. It should lead to the climax.

Symbolism: See Relational Cutting.

Symmetrical Track: See Optical Recording System.

Synchronisation: Accurate harmony between sound and picture.

Synchronous Tape: See Magnetic Tape, 1/4-In.

Synchro-Screen: The RCA Sychro-Screen was an indirect step towards wide screens. The Synchro-screen eliminates the impression of a picture outlined with a black border and hung on

Digitized by Arya Samaj Foundation Chennai and eGangotri

a wall, and the harsh contrast between a brilliant image and a black surround no longer exists. Fundamentally, the Synchro-screen consists of five parts, the main picture screen, two side wings, a top panel and a bottom panel. The wings and panels are covered with a material of similar texture to that used for the picture screen, and are carefully set up on the stage in a definite relation to each other and to the projected picture. The design and positioning of the surrounds cause the image of the picture edges to fall on to inclined surfaces so arranged that these edges are out of focus and no abrupt border to the picture is discernible, from the theatre seating area. The width of these defocussing portions of the surrond is such that no bordr line picture jump can be noticed.

In addition, the surrounds of the Synchro-screen reflect diffused light, from the adjacent picture area back towards the audience. The reflection is synchronous, both in intensity and colour, with the picture content so that the surroud appears to the audiece as a blended extension of the picture area. However, there is never any distraction to the audience since the brightness of the surround never approachs the brightness of the picture itself.

The net result of this screen, is an appreciable and dramatic increase in the luminous field of vision. The picture appears larger, and therefore closer, and the action more live. The synchronous luminous surrounding field has a subtended area of some 90 to 120 per cent of that of the picture area.

T

Table of CTO Filters: See Filters CTO, Table of.

Take: One recording of shot.

Talkie, History of: In 1857 Leon Scott in France had recorded sound waves as a wavy line on smoked paper. In 1877 Edison announced the successful recording of such waves on a cylinder coated with tin-foil, and the reproduction of sound from them. The work of Clerk Maxwell in England, and Alexander Graham Bell in Boston, had greatly extended our knowledge of the nature of sound waves, and of the possibility of transmitting them in the form of electrical energy and reconverting this into sound after transmission. The first experiments had demonsrated the value of the selenium and the photo-electric cell,

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

which produces a tiny amount of electric energy when excited by light, more or less in proportion to the degree of excitation.

The work of John Ambrose Fleming and Dr. Lee De-Forest had culminated in the production in 1906 of the De-Forest audion, a three element vaccum tube or valve which provided the means necessary to amplify the sound so far obtained, and gave tremendous stimulus to experiments on sound reproduction. It may be said with truth that most of the basic problems of sound reproduction had already been solved and only the ability to amplify was needed to make practical application possible.

During the period 1922 to 1925 many experiments in talkies were conducted, prominent during this period being the De-Forest Phono-film and the General Electric Pallophotophone.

In 1926 Warner Brothers and the Vitaphone Corporation presented the first successful talking pictures to the world, using discs.

In 1927 William Fox showed sound recorded on film, and launched the Movietone News Reel. The year 1928 may be recorded as when the sound film was generally accepted.

Technicolor: The first Technicolor labouratory was built within a railway car at Boston. In 1917 this car was transported to Jacksonville, Florida, for the production of the first Technicolor feature, "**The Gulf Between**".

The present-day three-component Technicolor process, which makes use of special cameras, may be described briefly as follows:

Light reflected from a photographed object enters a single lens and strikes a prism. Part of the light passes through the prism and through a green filter to a green sensitive primary negative. The remainder, reflected at right angles, is absorbed by two other primary negatives, individually sensitive to blue and red light. These negatives which have recorded the primary colour aspects (red, green and blue) of the scene are developed to produce negatives which look much like black-and-white negatives, but each one is a record of the primary colours in the scene.

From each of these three colour separation negatives a special positive relief image is printed and developed. These positives differ from ordinary positives.

These positives, which are called "matrices", are used as printing plates.

Tape Synchonous: See Magnetic Tape, 1/4-In.

CC-0. In Public Domain. Gurukul Kangri Collection

Digitized by Arya Samaj Foundation Chennai and eGangotri

Technicolor Monopack: Monopack is single film which can be exposed in any standard black and white camera with colour-corrected lenses, developed as a negative, but is reversed in processing to become a positive colour print. It has three layers of light sensitive emulsions, scarcely thicker than ordinary black and white film, but each emulsion layer sensitive to a primary colour.

The surface emulsion is sensitive to blue; the second emulsion is sensitive to green and the third emulsion is sensitive to red. After development as a negative, the three images are bleached out and again exposed and developed in coupler developers. The resultant images are positive and dyed with colour complementary to the emulsion layers. All three coloured images being directly super-imposed upon one another, perfect registration is assured. Critical sharpness of the three primary images and the lack of grain of this multilayered film produce extremely sharp separation results.

For additional prints from Monopack, separation negatives must be made, by an optical printer in which the Monopack is projected through a filter for each separate colour after which the conventional Technicolor imibition process is employed, as in the case of other type of originals, either three-strip negative or successive-exposure cartoon colour photography.

Telecinema: This is the first cinema in the world to be designed and built for showing both films and Television and demonstrates four main features of progress in the industry. This was erected for the "1951 Festival of Britain."

Tele-photo lens: A special lens used in photography to take pictures of the distant objects. This lens brings the images of the distant objects nearer.

Tele prompter: Mechanical device for actors who cannot memorize their dialogues. They are written in bold type and are read and spoken by the performers.

Television: Television is the reproduction of moving pictures with a wire or wireless link between transmitter and receiver. The image of the studio scene or of a cinema film is not transmitted as a whole, but is explored point by point, and signals corresponding to the illumination of each point are transmitted in a regular sequence. At the receiver the inverse process takes place in the reconstitution of the picture.

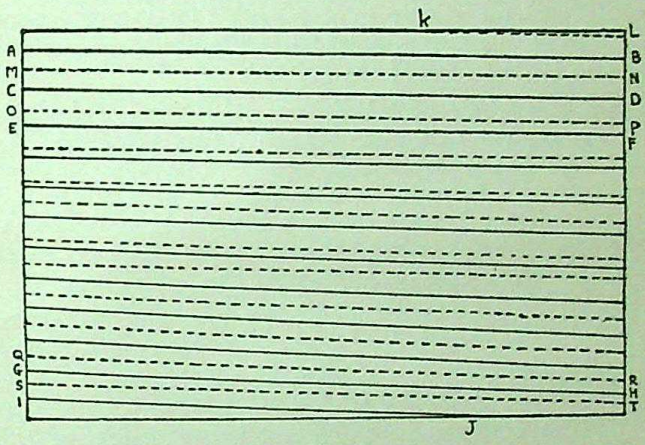
The general practice is to use a cathode-ray tube at the receiver, this consists briefly of an evacuated glass bulb with a flattened end coated with fluorescent material; this is the screen and it

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

fluoresces brilliantly under the impact of high-velocity electrons. An electron gun is included in the tube and produces a narrow beam of electrons which can be focussed on the screen by the application of an electrostatic or electromagnetic field. The fluorescent spot on the screen can be made of the order of 0.5 to 1.0 mm. in diameter.

The beam of electrons can be deflected as required by suitable electrostatic or electromagnetic field, so that the flourescent spot can be moved almost instantaneously to any position on the screen. The intensity of the electron beam, and hence the brilliancy of the spot, can be controlled at will and almost instantaneously over a wide range. (See Figure No. 2).



(Fig. No. 2)

The spot is arranged to move in a series of parallel lines from left to right across the screen, the spot starts at the top left hand corner at A and moves steadily across the screen and slightly downwards to B. It then flies back very rapidly to a point C below A and starts to trace out a new line CD below AB. On reaching D it flies back to E and traces out EF, and so on.

At the bottom of the picture, having traced GH, it flies back to I and starts to trace out another line as before. In this case, however, it reaches the bottom of the picture at J before it reaches the right-hand side. The spot now flies up to K and traces out the remainder of the line KL above AB. On reaching L the spot flies back to M and then traces out MN between AB and CD. From N it goes to O and traces out OP. It continues in this way, tracing out a second series of lines in

Digitized by Arya Samaj Foundation Chennai and eGangotri

the spaces between the first series. At the bottom the lines are QR, ST, and from T the spot flies back to A and the whole process starts again.

This is the usual interlaced scanning and the complete sequence of events from A back to A forms one picture, and the half-seres transmissions there are 25 pictures a second, or 50 frames, and 405 lines to each picture.

Cathode-ray methods are used in the Emitron transmitting camera in which a beam of electrons performs precisely the same evolutions as that in the receiving tube. Synchronising pulses are inserted in the transmitted signal at the end of every line and every frame in order that the beam in the receiving tube may be kept exactly in step with that in the transmitter; at any instant, the beams must be in exactly the same positions relative to the borders of the screens.

There are two kinds of televisions: (a) Direct Television and (b) Television through film. When direct television is to be shown, the scene is recorded by a special television camera and shown with the help of "Microwave Antenna". Short-Throw Schmidt Projector is used to show the direct television on the screen.

When it is to be shown through the medium of a film, the scene is reproduced on a small Cathod-Ray tube and picturised with a camera. The exposed film then goes through high speed developing machine, in darkness, at the speed of 90 feet per minute and it is projected on the screen.

Up to 1939 a common man did not know much of this new invention. In the television camera there is a tube which is called a "Electron Tube", 17 inches in length which receives a picture 7/8 inch high and 1¼ inch broad. Television is based on a simple principal of transforming light-waves into electric waves and electric waves into light waves again. The first process is called "Transmition" and the other "Receivation".

Today there are more than 600 Television stations and nearlly 2,50,00,000 T.V. sets in America. Television was first exhibited in India in 1955, in an Industrial Exhibition, at Delhi. India is looking forward to have T.V. in near future, though there are few sets in Delhi.

Television (CBS-Colour): On August 18, 1949, CBS (Columbia Broadcasting system), under the sponsorship of the Smith, Kline and French Laboratories, put on the first experimental colour television broadcast in Washington, D.C., for the Federal Communications Commission and other government offi-

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

cials. The programme originated at Johns Hopkins Hospital, Baltimore, Md., and was telecast to Washington over the facilities of WMAR-TV, Baltimore, and WMAL-TV, Washington.

Television, (CTI-Colour): On March 16, 1950, the first experimental recording of a CTI (Colour Television, Inc., San Francisco, Calif.) "line sequential" colour telecast was made from an RCA three-tube receiver equipped with dichroic mirrors. This recording was made at 15 frames/sec. using the modified Mitchell 16 with the f/0.7 lens. The present CTI receiver employs rear projection, the image being viewed on a translucent screen. The resulting image in this case is not as bright as the image that appears on a direct view tube.

Television, (RCA-Colour): Arrangements were made in October, 1949, to attempt a recording of the RCA "dot sequential" colour television system and after several unavoidable delays, the first colour recording was made at the RCA Silver Spring Laboratory on March 10, 1950. This initial recording was made a 15 frames/sec. with a 180° open shutter, the exposure time being 1/30 sec .

Television Cameraman: The television cameraman will often control his own camera movement. Many of the camera dollies used in television stations today may be operated by one man and, in general, a good cameraman can usually work better alone than with an assistant.

In the television camera, then, more aspects of the camera's operation are under one man's control. This gives him more work to do in one sense, but relieves him of a great burden at the same time—the burden of coordinating the actions of two or more operators. When one man operating, he is subject to a certain possibility of human error. When two men are operating the same camera, however, the factor of human error is not merely doubled, it is multiplied by four. Each man's errors reflect upon the other. When as many as three operators must cooperate in the operating of a single camera (the counter-balanced-crane type of camera dolly requires three men), the factor error may be increased by nine. Equipment such as this can be used to best advantage only when plenty of rehearsal time is available.

The television cameraman develops more rapidly in his craft and reaches a high level of skill in much less time than it takes his motion picture counterpart. This is due to two factors: the actual amount of camera handling he does, and the fact that he can see his results as he works.

CC-0. In Public Domain. Gurukul Kangri Collection

Digitized by Arya Samaj Foundation Chennai and eGangotri

In the usual motion picture studio, the largest part of shooting time is taken up in adjusting lights, rehearsing actors and in a thousand details of production. If an average day's shooting amounts to, say, five minutes of finished film, it can be assumed that the camera was in actual operation on takes and retakes, or on rehearsals before the takes, perhaps a maximum of twenty or thirty minutes. It was only during this time that the cameraman was practicing his skill.

The television cameraman, works his eight-hour day in almost constant camera manipulation. The director invariably comes into the studio with more show to produce than he has rehearsal time for, and pushes the camera crew as hard and as fast as he possibly can. Of course, the cameraman is not working at top efficiency all this while—if there are two or three cameras involved in the studio rehearsals, only one bears the entire burden of the production at any one time, while the others reposition for their next shots. There are moments, too, when the director is concerned with problems, of acting, staging or audio, during which the cameraman can relax. It is safe to say, however, that a good three hours of his eight-hour day are devoted to actual camera handling. In comparison with the motion picture cameraman, then, he gets six times the experience in the same period of time.

Not only does the television cameraman get more training, but he gets better training because he can see the results of his efforts as he works.

A poor shot is immediately evident to him; he corrects the error at once, and the lesson has been learned.

With these factors in mind, it is easy to understand why the best of television camera work is on such a high level. A good cameraman, after a year or two on the television camera, has learned his equipment so thoroughly that it is practically an extension of his own body. He can seemingly make the camera do anything and go anywhere, and do it smoothly and perfectly the first time. He has developed the techniques of handling the camera and the camera dollies which the manufacturers of the equipment never imagined. It is not correct to say that the best of television camera work is superior or even equal to the best of motion picture shooting—the film medium will probably always show superiority in production techniques. The flexibility of the television camera, however, and the ability of the cameraman to produce complicated shots smoothly and without rehearsal, is something entirely new in camera handling, and in this the good television cameraman is far superior to his motion picture counterpart.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Television, closed-circuit (CC TV): Closed circuit television is the point to point transmission of pictorial information for professional purposes. Closed circuit telecasts can thus only be seen by those audiences or individuals for whom they are specifically intended. Generally, the closed-circuit signal reaches the receiving end by cable, and in many cases it will not leave the area where it was picked up by the camera. It has been proved important in the field of visual communication and gives better and easier instruction. Also it will serve as an extra safety measure on busy airports and in heavy traffic. (See Vidicon Camera chain (philips), and Visual Communition.)

Television, Colour: See Colour Television.

Television Programme, — 6 stages of:

(1) *The Paper Stage*: Detailed preplanning is absolutely vital to television production. In the paper stage, the director works with floor plans and shot plotters; he makes little sketches on the script of what the shots should look like; he visualizes the positions of the cameras in the studio; draws them on the floor plans for every shot, and insures that everything he visualizes is practical and will work.

(2) *Outside Rehearsal*: Rehearsal of complicated shows aways begin outside the studio in a rehearsal hall or some suitable space. The plan of the studio sets is marked off on the floor; chairs or other furniture are used to simulate sets and props, and the performers get a good idea of the space in which they are to work. Here the director will move about, taking the place of one camera and then the other, as he views each shot from the position of the camera that will take it. Some directors use a portable view-finder with lenses, which will give them the field of view of the television camera lenses. This instrument is available on the market at a rather high figure. Other directors use homemade view-finders, frame viewers or a simple shoe box finder with a cut-out mask. Most directors, however, frame a picture with their own hands. Some use their arms, some their fingers, but the result is the same—an easier visualization of a picture within a 3 x 4 frame.

If it is possible economically, the ideal thing is to show the cameramen an entire rehearsal of a show outside the studio before the first use of cameras on the studio floor. Studio rehearsal with facilities is, to a large extent, a period for briefing the cameramen, the stage crew and the control-room personnel on the many aspects of the show which the director has previously worked out on paper and with the cast. If the cameramen

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

have seen the show before rehearsal, much of this time can be saved. Further, the cameramen are authorities on the problems of space and traffic on the studio floor and can spot difficulties of which the director may be unaware. And finally, the creative mind of the cameraman, and his own powers of visualiation, are a great help to the director in this planning stage.

(3) *Dry Run*: Many directors prefer to use their first hour or so of studio rehearsal for a dry-run, that is, to walk through the show from beginning to end without using the electronic facilities at all, working with the cameramen and crew on the studio floor. Positions of cameras and angles of view are more easily visualized here than in either the paper stage or in the outside rehearsal stage of development.

(4) *Rough Run Through*: A fourth stage is sometimes added here—a straight run-through of entire show, paying no attention to all the mistakes, rough places and problems that turn up. This can be very valuable for the crew, especially for the stagehands who must make scene changes or work props during the show. Only a complete run-through with cameras can give them a total picture of the show, and without it they will be somewhat confused until the last dress rehearsal puts all the pieces together for them.

(5) *Work-through (Stop-Start)*: This stage is the stop and start or "work-through" which will take up the major portion of the rehearsal period. The director works through the show, stopping whenever necessary and working out all his problems as he comes to them. It is during this rehearsal that all the fine details of camera work will be set, and the cast and cameras will be coordinated.

(6) *Run-Through*: The sixth stage is the final run-through which is done preferably without stopping. Some directors will run through the show as many times as possible before air time, others may rest content with one good dress rehearsal and spend the remaining time working on difficult sequences. More often, there is time for neither, and sometimes a show is worked through so close to air time that there is not sufficient time for a complete run-through at the last. Most of the small stations, when they attempt dramatic shows or other complicated types of programs, cannot allocate sufficient rehearsal time for all these stages. In such cases, all the steps are eliminated except the paper stage, the outside rehearsal and the work-through.

Television Recording, Black-and-white: The first black-and-white television recordings secured by the U.S. Naval Photo-

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

graphic Center were made on March 21, 1946, at the Naval Air Station, Anacostia, D.C., during the public demonstration of the Navy "block" and "ring" air-borns television equipment.

Television Script Writing: All that is good for film script writing is applicable to Television script-writing also. But instead of being shot "piece by piece" as is the case with a motion picture, the TV programme is a scene by scene, uninterrupted, continuous performance within a set period of time the script must accommodate itself to these factors. To prepare a shooting script for filming with camera directions, movements of the performers and so forth, is not necessary nor is it advisable to do it in the television script.

Television, Sterio: See Sterio-Television.

Television System, Philips Colour: The basic system consists of one camera chain and one large-screen projector. It is of course possible to extend and elaborate the system to more operating rooms and to any number of picture-viewing sites, located at appropriate places. Either colour picture monitors or large-screen projectors may be used, according to the size of the audiences.

(1) Operating Room: Installed in the operating room is a special operation lamp from which the camera head can be suspended. The 14" monochrome monitor serves two purposes: (a) It shows the resultant picture of the operation as viewed in the auditorium. (b) It can be used by the technical adjustment to the camera.

(2) Technical Room: It containes: (a) The camera control rack, (b) The camera amplifier rack, and (c) The projector rack.

(3) Auditorium: The large screen TV projector utilizes three side by side Schmidt optical system. The three 5 inch., 50-KV projection tubes have screens of a red, green and blue phospher respectively.

(4) Accessories: Two mains stabilizers of 5 KVA.

Tempo: (1) The speed of the story or the placing and spacing of incidents. It is the relative speed or rate of movement of the story as it unfolds from beginning to end.

(2) Impression of space in film, created by the relative length of the shots and by the speed of the action within the shots.

Thaumatrope: See Cinematography, History of.

Theatrograph: The name given to the projector invented, in February 1896, by Robert Paul.

Digitized by Arya Samaj Foundation Chennai and eGangotri

Theme: The difference between a first grade story and second is the theme. Theme is the binding link, the motive. The cement for the bricks. A story may attain great dignity by its theme, without it there is left only series of plot incidents. Themeless story is merely a story, theme adds wisdom, observation, quality, education, enlightenment, condemnation, accordig to its purpose.

Thomascolor: The Thomasolor process is quite different from other colour film, in that it employs a standard black-and-white single emulsion film as well as regular black-and-white technique and developing methods, from exposure of the original negative through the processing of transparent positives. The only variance is that with a single shutter opening, three colour separation negatives are exposed at once.

The process consists of a single strip of single emulsion panchromatic film 35 mm. or 16 mm. upon which is registered simultaneously three black-and-white images photographed through the Thomascolour filters. For photographing and projecting, an optical system is used containing filters, replacing the regular camera and projector lens. Thomascolour employs an optical system that embodies refraction, partial and total reflection to make three optical colour corrected images simultaneously. A projection lens of singular ingenuity causes the light passing through the black-and-white positive to be filtered and then coloured with the three colours used in the process. The projected images are superimposed in full natural colour upon the screen. There are no dyes, no toning or tinting of either positive or negative. The colours are due entirely to perfect spectral cut-off in making the negative and to projected and superimposed coloured light to rected, assuring sharp focus and definition of all three images.

The film is developed like any ordinary black-and-white films, and as all images are on the same strip, they are developed simultaneously. Hence all shrinkage must be equal throughout.

Therefore, the three images are automatically in register as to size as well as to superimposition on the screen.

Printing the film follows the black-and-white technique, the same as the negative. Ordinary black-and-white orthochromatic film is used for the positives.

The same equipment and chemicals as are employed in any good laboratory are used. Special effect and trick work are practical and easy to control due to the fact that the process is

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

basically black-and-white and the colour results from white light rather than chemicals or dyes.

Threading: Placing film or tape through camera, projector or recorder to insure its proper transport through these mechanism.

Three "D": Look at the room in which you are sitting with one eye closed. After a moment open the closed eye and the room will spring into three-dimensional perspective. What you were looking at with one eye closed was a flat two-dimensional picture little better than a photograph from the point of view of judging how to move about in it.

Thee Dimensional Films (3 D for short): 3 Dimensional film is Technical revolution in the motion picture industry.

For quite some time trade has felt that a radical change in the presentation of motion pictures was necessary and the advent of Television in the U.S.A. as a serious competitor, has accelerated this demand.

Hollywood provided the answer with the presentation of full length motion pictures in three dimensions (3-D for short) and in a manner that similar screening could take place in the average theatre at a very reasonable cost.

The first-feature 3-D film — Warner Brother's "Bwana Devil"— an African jungle picture in colour—had its world premier in Hollywood in November 1952.

Stereo pictures—or pictures in three dimensions—are not new; most of us are acquainted with the old stereo viewer of grandma's days with which we saw still pictures come to life. But full length motion pictures in 3-D, and in colour, pictures that make you feel you could almost touch the actors, when animals leap right out of the screen and appear to charge at you, when the lovely actress leans forward and appears to come right up to you . . . well, that is news.

"Bwana Devil"—Warner's full length picture in colour shot in 3-D used a new stereo camera (Natural Vision) designed to reduce eye strain. Although the new system requires the viewing audience to wear Polaroid glasses, it is claimed that it approximates what the human eye sees more closely than any other type of stereo previously introduced.

Images are photographed from two different points of view, just as they are seen in nature. In place of the single Motion Picture Camera two regular 35 MM units are used mounted facing each other, and with their lenses aimed at 45 degrees Mir-

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

rors. Thus each lens focusses and converges on an object almost precisely as the human eyes, providing a separate and complete two dimensional picture.

(A) In the theatre the normal two projectors in the booth project two separate pictures on to the screen in superimposition, which as in nature are projected on to the "brain eye".

(B) The right and the left images pass through Polaroid light filters placed in the holes of the projection booth.

(C) The two images are superimposed almost as one on a highly reflectve type screen.

(D) The images are reflected back to the viewer who is provided with Polaroid spectacles, which serve to accept the correct image intended for each eye, while rejecting the image not intended for that eye.

Tilt: To turn the camera up or down while taking a shot.

Time for the phases of a story: See Story, phases of.

Time-jumps: Try not to leap the years, at least not more than once, unless you are creating a story of the cavalcade type, in which case your audience will be prepared. Too many time-lapses in the ordinary story destroy interest.

Time laps: See Animation.

T.M.T. Technique: T.M.T. means Ten Minutes Take. This new technique is introduced by a well known film director Alfred Hitchcock. In this system one single shot is taken continuously, without breakings, for ten minutes. While shooting this type of shot, camera also moves along with the movements of the players. The movements of camera and that of players are measured and well rehearsed before actually shooting the scene.

In India, nearly the same kind of attempt (though not exactly the same) was made by Late Rustamji Modi, in filming a drama "Khune Nahak", in 1935.

Titles: The average movie or television fan has come to expect that a picture will open with smart titles over an interesting background. He senses that the main title fades in, that credit titles dissolve into each other, and that an optical is used to mark divisions between titles and picture.

The modern producer devotes considerable time and thought to the creation of striking and symbolic main titles—the pictorial overture. They are calculated to arrest the eye, awaken

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

interest and set the mood for the film that follows. (See Roller Title).

Todd-AO: The term "Todd-Ao" stands for the newest of wide-screen motion picture processes. The term is a combination of the name of Michael Todd, whose vision inspired the development of the process, and the initials of the American Optical Company whose research staff of more than 100 of the nation's top engineers and scientists developed it.

Todd-Ao is not merely wide screen. It is large screen and it is wide angle. Tod-AO motion pictures are photographed on film that is 65 mm. in width—wider than the conventional 35 mm. film used in all other wide-film processes. Both negative and prints are made of Eastman Color film, which is processed by Consolidated Film Laboratories at Fort Lee, N.J.

On the same order as Cinerama, but vastly superior, since it is photographed with only one camera and projected with only one machine instead of three, Todd-AO gives the spectator a terrific sense of audience participation.

Aspect ratio of Todd-A0 is 2-1, and projection is on a curved screen with a high reflectance surface. A typical size would be 51 feet across by 25 feet in height, with a curve 13 feet deep at the centre. Actual screen length along the curve would be 65 feet.

A new high-fidelity stereo-phonic sound system is employed that involves seven tracks—six tracks plus one control track.

Completely new cameras had to be built for the system. They are approximatly the size of a Mitchell, but have a slightly larger head and wider film magazines to accommodate the larger 65 mm. negative. The wider film allows greater flexibility and degree of clarity. The 65 mm. picture frame is 3½ times the area of the standard 35 mm. frame. Where there are four sprocket holes on either side of the conventional 35 mm. film frame, the 65 mm. Todd-Ao frame has five sprocket holes. Another feature is the higher speed of film travel. Camera speed has been stepped up from the conventional 24 frames per second to thirty, which tends to smooth out action on the larger screen.

As with conventional motion picture cameras, the Todd-Ao takes a range of lenses of different sizes; but unlike the lenses used on 35 mm. motion picture cameras, which very in focal length, the Todd-Ao lenses are classified according to the angle of coverage. Thus the Todd-Ao have a selection of four lenses that cover everything from a close-up to distant scenic shots.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

These range from the huge 128 degree "bugeye" wide-angle lens, so called because of its enormous front element, down through the 64,48 and 37 degree (angle of coverage) lenses.

At present two cameras are required in shooting Todd-Ao productions one having the 128 degree "bugeye" lens permanently attached, and the other designed to take the 64,48 and 37 degree lenses interchangeably.

The Todd-Ao process was demonstrated for the industry and press at Metro-Goldwyn-Mayer studios in Culver City, where are quartered the Rodger & Hammerstein Company, producers of "Oklahoma" — initial production in the Todd-Ao process. Test footage photographed by Robert Surtees, ASC, and Harry Stradling, ASC, was screened which demonstrated the results obtained with the four different Todd-Ao lenses. Of particular interest was the way both cameramen had adapted the 48° lens for close ups in dramatic scenes. The same was true in the use of the 128 degree "bugeye" lens for exteriors. The scope of coverage of this lens, incidentally, is so great that cameraman and assistants must stand well back of the front plane of the camera when shooting in order not to be included in the scene.

All the lenses have a short, sharp vanishing point, and the depth of field is very shallow. This means that the assistant cameraman really has to be on his toes when moving crane and dolly shots are being made with Todd-AO cameras.

"From the standpoint of optics alone", Surtees said, "Todd-AO is a superior picture process. The proportion of the screened image is better, too. In short, Todd-AO is the epitome of perfection for the director of photography. From the point of composition Todd-AO presents a much better format—one that affords greater compositional latitude for the cameraman and enables him to do a great many things pictorially that he has never been able to do in 35 mm. with the 3 by 4 format."

"With Todd-AO", Surtees continued, "we don't have to work so close to the players as when shooting with 35 mm. cameras. We have to be especially careful how players will look on the screen with relation to the larger screen size, however, keeping the 'giant' effect to a minimum. Big close-ups are better in Todd-AO; we don't have to worry about space at the sides as in the case with CinemaScope. In close-up and medium shot compositions, we never put a person's dead-centre in the scene. Also, we avoid panning with the movement of the players, but allow the players to move instead."

Todd-AO gives the spectator more of the feeling of participa-

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

tion of actually being on the scene—perhaps, than any other wide-screen process. The objectional feature of the three panels that exists in Cinerama, which cannot be exactly synchronized and therefore results in jumping action and distortion, is naturally not present in Todd-AO. The picture is one single unit.

Except for one or two things, Todd-AO photographic technique is little different from conventional 35 mm. The differences lie mainly in the technical operations of the assistant cameraman and the operator. For obvious reasons, panning must be held to a minimum. The cameraman must know precisely the optical limits of each of the four Todd-AO lenses, what they can and cannot do.

Any "across-the-screen" action must be photographed very carefully if not avoided entirely, because of the rapidly chaning speed of travel which moving objects or players seem to assume in cross-screen action when filmed with the wide angle Todd-AO lenses. A running horse, or a train in motion—entering the scene from one corner and travelling across diagonally—would appear on the screen to pick up speed as it neared the centre, then sharply diminish in speed as it proceeded towards the opposite side of the screen.

Makeup is another important factor, according to Surtees. When not exactly right, it shows up glaringly on the screen. "One thing we learned early", said Surtees, "is that Todd-AO is not kind to the aging. Middle-aged or elderly players really look their age when photographed in colour with Todd-AO, even with the benefit of the most expert makeup."

In the beginning, the origination and development of Todd-AO called for a complete revolution in equipment design—from the camera down to the splicers—even sound recording equipment interlocks — had to be revamped because recording equipment for Todd-AO runs at the same conventional speed as 35 mm., 90 feet per minute, against the speed of 140 feet per minute for the picture.

While the Todd-AO picture negative is 65 mm. in width, the release prints are on 70 mm. film—the extra width accommodating the extra tracks for stereophonic sound.

The well-known Phillips Electric Company of Holland designed and constructed the Todd-AO 70 mm. projectors. (See also Wide-film).

Trailer: Short film of excerpts which is used to advertise the forthcoming attraction.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Training films: See Career Film.

Traking Shot: Scene during which the camera is moved on a trolly to follow artists or pick up a detail etc.

Transferring: Taking over the recorded sound from the tape to the sound-film or vice-versa.

Transformer: An apparatus for changing the voltage of an alternating electric current supply.

Transition: Transition is used to convey quickly and smoothly a change of place, condition, or action. The speed of film is 24 pictures per second or 90 feet per minute. Each picture is called a frame which is ¾ of an inch. Sixteen frames make a foot. A single photograph in a film holds the eye of the spectator for only one-twenty-fourth of a second.

Transmition: See under Television.

Transmission: See Density.

Transmitter: An apparatus used for transmitting wireless signals.

Travelling matte: (1) A system which will accomplish all that is possible with the Dunning process, (See Dunning process) and which may also be used with colour films, is known as the travelling matte. This method depends, to a large extent, for its success upon the accurate regiseration of several films within one mechanism and during several printing operations.

(2) Piece of opaque film which blanks out in the camera or printer, a moving portion of the film which will later be exposed to another scene. Widely used in accomplishing trick shots, special effects, and combining live-action with animation.

Treatment: Treatment is the first outline that shapes the original story nearer to the director's desire. A competent treatment should clearly indicate the screen possibilities. It embraces dialogue, but is not a complete shooting script. There are no numbered sequences, but the sequences are fully dealt with.

It is the story of the film in its pretinionary form, visualised in pictorial terms but not yet worked out in technical detail.

Treatment of the story: Treatment means the technique, means and methods created to present the various incidents, situations and characters in a story most effectively.

There are two parts of treatment: (1) Treatment as it relates to

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

the pace and movement of the story as a whole. (2) Treatment as it relates the special handling of individual scenes, sound effects incidents etc.

Trees for shooting: As far as possible trunks of the dead trees shoud be used with necessary plaster work. Artificial branches with artificial leaves and flowers may be attached to them for the use of indoor shooting.

Tripod: A three-legged folding support for a camera.

Truck Shot: Moving shots and trolly shots means the same thing. (See Moving Shots).

Turret mount: Revolving holder of three different lenses on front of a camera to permit quick interchanging of lens which may be require for shooting.

U

Ultraviolet Recording: See Sound Ultraviolet Recording.

Under cranking: Photographic method where frames are exposed at a speed less than 24 frames per second, but projected at this speed. Has the effect of speeding up the action on the screen.

Under exposed: Negative that did not receive enough light through the lens and thus is too dense to use.

Under-Exposure: An under exposed negative is one in which exposure has been so short that the contrast in the darker parts of the subject is insufficient. In an extreme case, detail will actually be missing.

Unit: The personnel making a film.

Unilateral Track: See Optical Recording Systems.

Utiliscope: The Utiliscope is a closed-circuit television system developed by Diamond Power Specialty Corpn., Lancaster, Po. Simplicity in circuits and controls is a basic feature of this industrial instrument. The receiver is a Farnsworth cold cathode, imagine-dissector, camera tube. The complete system of camera, power supply and monitor is designed for portability and weighs 110 lb. The power supply can be placed as far as 25 ft. from the camera and the monitor can be upto 1000 ft. away.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

The lens used as standard equipment is 90-mm. f/1.4, coated, focussed by rack-and-pinion gear. A remote focussing drive can be incorporated, however.

V

Values of the picture: (1) Cost (2) Star values (3) Fashion values (4) Director values (5) Music values (6) Story values (7) Market values.

Variable Area System: See Sound Recording, Variable Area System.

Variable Density System: See Sound Recording, Variable Density System.

Varioscope: Ben Schalenger, the famous theatre architect, worked on a device which is to be used in connection with a motion picture camera which will enable the constant changing of the aspect ratio on a given screen area without changing lenses or aperture plates in projection. His contention is that, while a wide angle camera view is constant with the new large screen areas, it should not be forgotten that film story telling can utilize wide camera angles only for some of the scenes in most productions, and very few of the scenes in the intimate type of production.

Velocity Mike: A ribbon type of microphone.

Vibration: A rapid, to-and-fro motion of the particles of an elastic body or medium, as when a stretched cord is pulled or struck and produces musical tones, or when particles of air transmit sounds to the ear.

Vidicam System: This system, in actual use by the Vidicam Pictures Corporation of New York, operates as follows:—

To permit the producer to see what he is shooting a small television camera is mounted alongside the motion picture camera. The television camera is mechanically adjusted to see the same scene as that being viewed by the motion picture camera. The production is handled just as a television programme would be handled. The director selects his shots on television monitors and instructs his cameraman in proper movement. When he selects his television shot he simultaneously starts the associated motion picture camera. Suitable bloops are applied to

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

the sound track to assist in editing. This is really television production monitored by celluloid recording. Editing is practically accomplished as the production unfolds. Little or no film is wasted. Here is efficient production. The sustained performance is encouraged to the greatest extent possible. It is now practicable, with such a system, to turn out two 15-minute dramatic bits completely in a day's time including all rehearsals.

Vidicon Camera Chain (Philips): The Philips Vidicon Camera Chain for closed-circuit applications comprises the following basic items: (1) The camera, type EL 5730, (2) The camera control unit, type EL 5748 and (3) the multi-core camera cable. In addition a complete range of accessories such as lenses, pan and tilt unit, focus and iris control, special castings etc., is available.

Camera: The camera consists of a modern styled lightweight case containing the Vidicon pick-up tube, the scanning coil and pre-amplifier. Standard 16 mm. cine-lenses can be used. After changing the lens plate 35 mm. cine-lenses can also be applied.

Camera control unit: This contains the pulse generator, the final video amplifier, the scanning circuits, the intercom circuit, the H.F. modulator, the electronically stabilized power-supply and all operational controls.

Multi-core Camera Cable: This camera cable contains 3 coaxial cores, 2 shielded pairs and 20 normal cores. It can be supplied in lengths of upto 300 yards. (See Televison, closed-circuit).

Video Recording Camera: This camera has been designed specifically for video recording purposes, and therefore differs in many respects from usual conception of a 16-mm. camera. To accomplish intermittent film pulldown within the short space of time available, a multiple skip claw movement is utilized. The usual mechanical shutter is eliminated, but a device is incorporated to actuate an electronic shutter, which at the same time provides for the transition from 30-frames/sec. television to 24-frames/sec. film speed. In order to obtain the necessary film stability at the aperture, and to eliminate any tendency to scuff or wear off film emulsion at this point, a vacum-operated film gate is utilized, which permits the camera to be operated for rather long uninterrupted periods of time. Provision is made within the camera for the simultaneous recording of sound, at standard spacing for correct sound synchronization.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Vista Vision: A new photographic process known as Vista-Vision is introduced by Paramount Pictures. It claims that the process offers "the best print and in turn the best large screen picture that has been witnessed to date".

Vista-Vision is a wide screen system which deserves attention. Paramount advocated an aspect ratio of 1.66 to 1. According to them, the human eye, oval in shape, sees more width than height, and 1.66 to 1 comes closest to what people normally see in every day life. Almost all the existing theatres will find it practical to install the new screen without any major structural changes.

According to Paramount, the Vista Vision uses a new camera technique, which produces a picture of the highest quality ever seen on the screen. In the Vista Vision camera, called the Lazy '8' by studio technicians, the film runs through the camera horizontally and each frame is eight sprocket holes in film length, instead of the conventional four like the 'Leica' still camera. Originally the Lazy Eight camera was devised for the William Fox Nature Colour System of two colour photography in which the film moved two frames at a time past two lenses, one above the other, each fitted with different filters. As the system was a failure, the cameras were shelved, but they were dug out recently for the wide screen tests, and after modification were fitted with a Leica type 85 mm. lens. The Vista-Vision filming system provides a wider picture area on the negative without involving the use of any wide film. The standard 35 mm. negative is used. The negative image area which is 1.47 x O.997 is then optically printed in the reduced size to standard 35 mm. positive, in an operation which also turns the image by 90 degrees. Thus the release print is the standard 35 mm. positive which runs in the projector in the conventional vertical manner. Generally in photographic work, the limiting factor is the area of the negative, and in this method, the grain has been reduced by a factor of 2.66 to 1 due to the larger negative size. This process eliminates glare and fuzziness, and provides a picture with complete definition focus and the finest quality of picture possible to obtain. (See also Wide Screen Processes.)

Visual: Perceived by vision; as a visual impression; attained or performed by vision; as visual test.

Visual Communication: Expressed in simple terms, it means the application of television with object of enabling the viewers to see what is happening "round the corner".

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Visual Monographs: See Research films.

Vitaphone: Vitaphone was disc, a gramaphone record, 16 inches across and an inch thick, which was played at a much slower rate than the usual 80 revolutions a minute in order to make each disc last one reel of film, thus synchronising the sound with the movement of the figures on the screen.

Voice test: (1) Recording one's voice for test or as a sample. (2) A test of the voice of the artists participating in a scene of a picture, taken by the recordist at the time of shooting.

Voltage: Elechric power measured in volts.

Voltameter: An instrument for measuring the quantity of electricity passed through a conductor.

Voltmeter: An instrument for measuing in volts the difference of potential between different points of an electrical circuit.

Volume: Fullness or quantity of tone.

W

Wheel of life: See under "Cinematography, History of." See laso "Zoetrope".

Whip Over: Special use of too quick pan is known as a whip-over.

Wide Angle: Term applied to a lens embracing an angle of view that is wider than usual. As the usual angle of view is that given by a lens the focal length of which is roughly equal to the diagonal of the negative, any lens of shorter focal length than this is classed as a wide-angle lens.

Wide film: The use of wide measure film for wide screen is nothing new. In the period of 1928 to 31 many such systems were tested using film from 50 to 75 mm. in width. In May 1929, Paramount showed at Rivoli in New York its "Magna Film" a 56 mm. wide film. In September 1929, Fox Film showed at the Gaiety Theatre its picture "Grandeur" was 70 mm. wide.

Wide Screen Processes:

(1) *CinemaScope*: In the basic cinemascope process an anamor-

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

phic camera lens produced a squeezed image on the original film; projector lens unsqueezes image to full screen width.

(2) *CinemaScope* 55: Works in a similar manner (as in cinemascope), but use a 55 mm. film, for the original negative, from which release prints are made optically on 35 mm. film.

(3) *Cinemiracle*: A multipal large screen process with an aspect ratio of 2:1, using 3 films and three cameras to produce the basic negative. A special projector handles all three prints at once, producing an image 25 feet high and 50 feet wide on a special screen.

(4) *Cinerama*: A multiple film process producing a picture with an aspect ratio of 2:1. A special camera runs 3 films behind 3 individual lenses. Three projectors are used with a special blending devices to conceal the joints between the three picture image.

(5) *Naturama*: A single film wide screen process producing a picture with an aspect ratio of 2.55:1. An anamorphic lens is used on a standard 35 mm. camera to produce a squeezed negative image which is restored to its normal proportions by a complementary anamorphic objective for the projector.

(6) *Circarama*: A 360° process presently used only at Disneyland (America) in which 11 cine kodak specials photograph 11 parts of a complete circle, in projection, 11 screens for a circle completely surrounding the spectator. Rear projection is used. This was shown in India (Bombay) in December, 1961.

(7) *Scanascope*: Scanascope is a complete anamorphic camera lens containing both the squeeze elements and the camera objective in one unit. The squeez ratio is such that films made with the scanascope lens may be projected with any normal anamorphic projector on a screen having an aspect ratio of 2.55:1.

(8) *Superscope*: A wide screen process for pictures with an aspect ratio of 2:1. Film is shot with normal camera and lenses and the negative is reprinted to a positive which is squeezed in the printing. Complementary anamorphic lens on projector unsqueezes the image.

(9) *Vista Vision*: This process uses standard 35 mm. film in special 35 mm. camera in which the film runs sideways, producing an image about twice as large as the standard 35 mm. single frame. Special projectors run film horizontally as well, for large screen showings. (See Vista Vision.)

(10) *Todd-A.O.*: Motion Pictures are photographed on 65 mm.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

film. But all these processes besides having their own inherent defects, are very expensive. Their main draw back is that the film buckles at the projector gate give an in-and-out of focus effect. One must change not only the cameras, modify the studios, but also above all change the equipment, in the developing and printing laboratories, the projection equipment etc., which involves a very large financial outlay and hence they are not quite practical. (See Todd-AO.)

Wide Screen Technique: See Screen Technique—Wide, Wide-Film, Synchro screen; Caldwell Halo screen, Cinerama, Peripheral vision, Cinemascope, Vista Vision, Photorama, Varioscope, Plastorama, Todd-AO.

Wind, how to create: Wind is created by mounting giant fans that agitate 8000 cu. ft. of air per minute, on the moveable trollies so that they can be ranged side by side in batteries or wheeled round to any special place.

Wipe: (1) A wipe is the effect in which a bar or line appears to move across the screen obliterating one shot and revealing the next. Wipes can be horizontal, vertical, diagonal or at any directional and shape. It is possible to produce them in the camera with special apparetus. (2) Intermingling of one scene with another in which a margin moves across the screen so that one shot is replaced by the other.

Instead of dissolving out, the scene is changed by means of tricky designs. (See Fig. No. 3).

Wratten Filters: See under Filters for Black-and-White photography.

Writing Television Script: See Television Script Writing.

X

Xenophonia: Reflection of tone.

X ray: A ray of the same nature as light rays but of extremely short wave length and able to penetrate through various thicknesses of solids. X rays are generated by the striking of a stream of electrons against a metal surface in a vaccum tube.

Xylograph: Wood engraving; carving pictures of designs in wood.

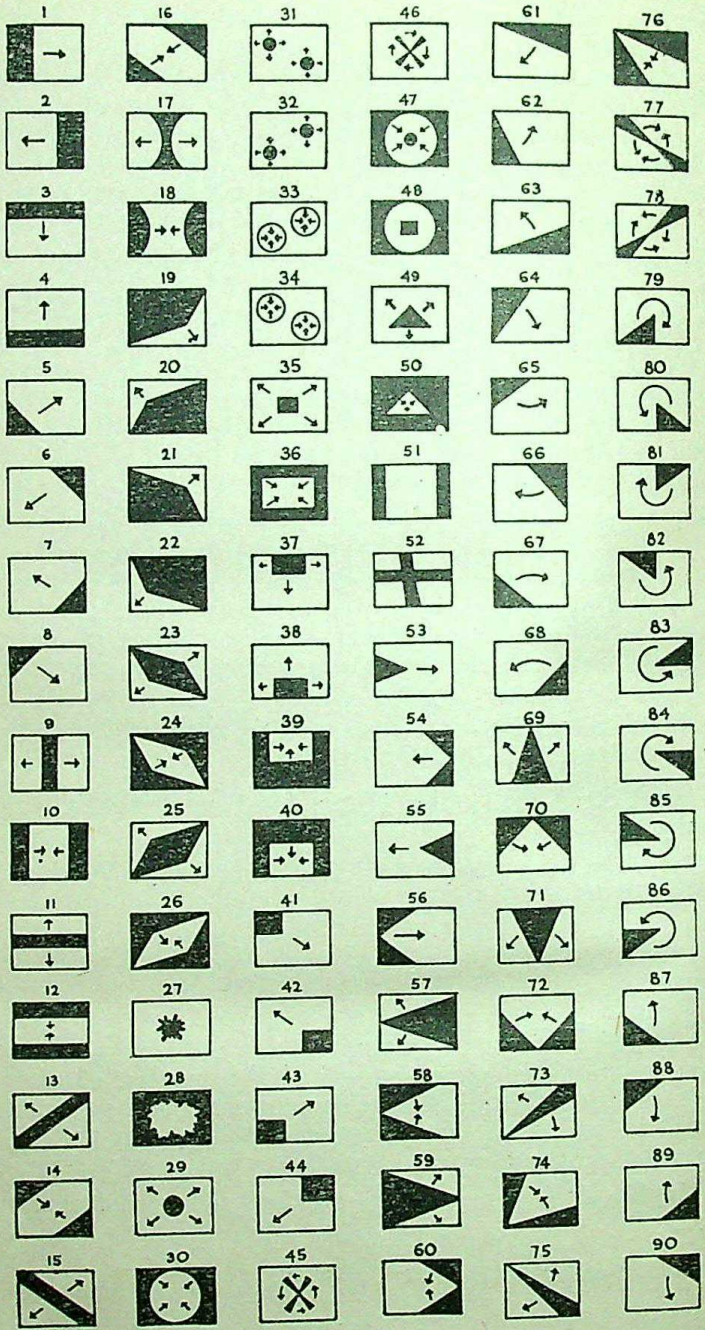
Xylonite: Another name for Celluloid.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Out lines of Wipe Effects

(Fig. No. 3)



CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Y

Yellow Filter or Screen: See Filter.

Z

Zoetrope: (I am active) An ingenious apparatus, circular in shape, with a raised edge, originally used as an entertaining toy for viewing a connected series of small drawings of figures, etc., and giving the illusion of movement. The raised outer edge of the Zoetrope was performed with a number of peep-holes, through which the series of drawings (which were fixed to the inner side of the raised edge) were seen in rapid sequence one at a time when the apparatus was revolved like a gramaphone disc. The effect produced was that of the figures in action, due to the retention of vision. In 1833 W. G. Horner patented a "wheel of life" or Zoetrope. The pictures were hand-drawn. The application of photography to the Zoetrope—or "Wheel of Life"—was first made about 1880 by Pritchard, who took a series of photographs of a steam-engine, moving it forward a little between the taking of each picture; and when the series was viewed in the Zoetrope, there was produced a most realistic appearance of the steam-engine in motion.

We must, however, go back much farther than this for the first idea of the lantern of projection Zoetrope, something of the kind having been patented by JUNDZILL in 1856; but it is believed that the first exhibition of animated photographs on the screen in London was in 1882, when Muybridge exhibited the horse in motion at the Royal Institution. About the beginning of 1896 exhibitions of animated photographs on the screen became suddenly popular, and almost every maker of an apparatus for this purpose gave a new strange name to his particular form of the lantern or projection Zoetrope.

Zoomer: A lens which provides a zoom by a quickly moving and focussing lens, without any movement of the camera.

Zoom Lens: A special lens to be attached to the cine camera for getting a special effect.

Zoom Shot: A shot taken with the help of a zoom lens.

Zoopraxiscope: See under Cinematography, History of.

CC-0. In Public Domain. Panini Kanya Maha Vidyalaya Collection.

Digitized by Arya Samaj Foundation Chennai and eGangotri

Reference Books & Periodicals

1. How to Script: by Paul Rotha.
2. Designing for Moving Pictures: by Edward Carrick.
3. How to Series: by Focal Press.
4. The Film in Education: by Andrew Buchnan.
5. Dictionary of photography: 16th Edition.
6. Film: by Rager Manwell.
7. Film Review.
8. Journal of the Society of Cine Audio Engineers.
9. New Technique of Screen Writing: by Tamar Lane.
10. Money for Film Stories: by Norman Lee.
11. Pictorial Lighting: by William Mortensen.
12. Movie Cavalcade: by F. Maurice Speed.
13. Westrex News.
14. Screen Writing and Production Technique: by Charles W. Curran.
15. Principals of Cinematography: by Leslie G. Wheeler.
16. Motion Pictures: by A. R. Fulton.
17. The Entertainment Film for Juvenile Audiences: by Henri Strock.
18. Journal of the SMPTE: (Society of Motion Picture and Television Engineers)
19. Film Industry.
20. Copy right Act 1957.
21. Motion Picture Bulletin: (Technical)
22. American Cinematographer Hand Book and Reference Guide: (5th Edition).
23. British Cinematography.
24. T. V. and Film Production Data Book: by Ernest M. Pittaro.
25. Cinema Shastra ani Tantra (Marathi, 2nd Edition): by Capt. M. K. Shinde.
26. Design in Motion: by Halas and Manvell.
27. The Art of Television: by Jan Bussell.
28. The Audio: (Cyclopedia).
29. Successful Film Writing: by Seton Margrave.
30. Electric Eye (Movie Manual): by Halas and Manvell.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Index

[The names, hereunder, are given as they are written, and not beginning with the Surname. The figures indicate the page numbers.]

A

Abdulali Yusufali: 98
Aboo Hussein: 98
Aga Hashra Kashmiri: 96
Alexander Graham Bell: 148
Alfred Hitchcock: 160
Al-Hasan: 91
Ardeshir M. Irani: 94, 96, 98

B

Baburao Painter: 95
Ben Schalenger: 132, 166[a]
Bert Aeres: 26
B. G. Tilak, Lokmanya: 94
B. K. Dave: 94, 98
Boman Irani: 98
B. R. Deodhar: 97
B. V. Keskar, Dr.: 21

C

Charles Urban: 94
Charlie Chaplin: 94
Charles Babbage: 25
Christopher Wren, Sir: 105
Clerk Maxwell: 148
Cohen, Prof.: 121
Cooverji Nazir: 99

D

Dada Torne: 97
D'Almeida 5
D. G. Phalke: 92, 95, 97
Dhanji K. Desai: 100
Dhirendranath Gangopadhyay: : 94
Dorishtrope: 26
Dwarkadas Naraindas: 94
D. W. Griffith: 23, 27, 51, 83, 130

E

Earl Sponable: 23
Edward James Muybridge: 25, 26, 173
E. J. Marey, Dr.: 26
Emile Cohl: 28
Eugene Lauste: 109

F

Fitton, Dr.: 25
Francis Jenkins: 34
Franz Osten: 95
Fred Waller: 29

G

Garutso: 85
George V, H.M.: 94, 95
George Eastman: 26, 61, 62, 64, 68, 69, 71, 85, 136, 145
Gokaldas Damodar: 93

H

Hannibal Goodwin, Rev.: 26
Hanover: 124
Haribhai Desai: 95
Harry Stradling: 162
Henri Chretien: 22
Henry Martyn Baker: 29
Himanshu Rai: 95

J

Jaffar Hajibhoy Laljee: 98
Jayshankar Khodidas Dwivedi: 99
J. F. Madan: 93, 99
John Ambrose Fleming: 149
John G. Frayne, Dr.: 144
John Grierson: 27
John Herschel, Sir: 25
Johnson: 97
Joseph Wirsching: 95
J. Strong: 105
Jundzill: 173
Jyotish Sarkar: 93

K

Kalidas: 94
Kevalram Mavji Dave: 98

L

L. B. Phatak: 93
Lee De-Forest, Dr.: 149
Leon Scott: 148
Louis Ducos du Hauron: 5
Lumiere: 26, 27

CC-0. In Public Domain. Gurukul Kangri Collection

Digitized by Arya Samaj Foundation Chennai and eGangotri

M

Madhavji Jesing: 93
Mandakini Phalke: 93
Maneklal Joshi: 99
Maneklal Patel: 97
Manik D. Sethna: 92
Mary Field: 20
Master Vithal: 96
Max S. Kladanowsky: 26
Mayashankar Bhatta: 93, 97
M. Demeny: 26
M. Evans: 26
Michael Todd: 161
M. Linde: 6
M. Melies: 27
Moti Sagar, Sir: 95
M. Promio: 27

N

Nadar (of France): 4
Nanabhai Chitre: 96-97
Nanabhai Desai: 98
Nitin Lahiry: 94

P

Pandoba Sane: 92, 93
Paris, Dr. 25
Patwardhan: 96
Prem Sagar: 95
Pudovkin: 129
Purushottamdas: 95

Q

Queen Elizabeth: 93
Queen Victoria: 27

R

Radhakrishnan, Dr. 21
Robert O' Flaherty: 27
Robert Paul: 85
Robert Surtees: 162, 163
R. P. Paranjpe: 100
R. Prakash: 95
Rustamji Modi: 160
R. Venkiah: 95

S

Save (Harishchandra Sakharam Bhatodekar) 100
Seth Purshottam Vishram: 97
Signor & Signora Manelli: 93
Signor Ponti: 5
Sita Devi (Ranee Smiht): 95
S. N. Patankar: 94
Spyros Skourao: 23
Suchet Singh: 94, 95
Sultana: 94

T

Thomas A. Edison: 26, 27, 50, 104, 132, 148
Tipñis: 97

V

V. S. Apte: 93, 97, 98

W

Walt Desney: 28, 54, 55
W. Friese Greene: 26, 84, 116
W. G. Horner: 25, 173
William Fox: 149

Y

Yashavantrao Kothare: 97

Z

Zubeda: 96

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

HOW GOOD IS A PICTURE

Here are two of the many systems of giving marks to judge the merits of a moving picture.

SYSTEM ONE:

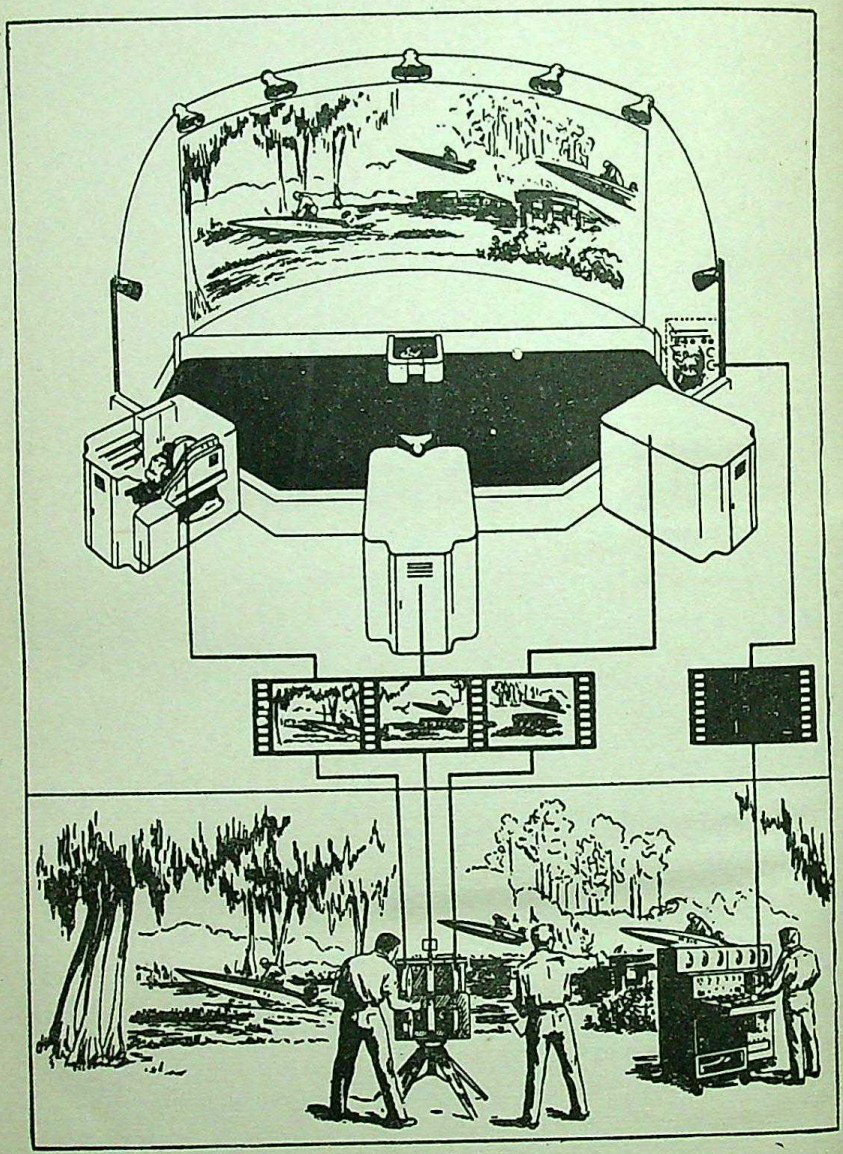
Items		*Marks*
1. Story of a picture	...	20
2. Entertainment values	...	15
3. Acting	...	15
4. Direction	...	15
5. Photography and Sound Recording	...	12
6. Selection of artists	...	10
7. Dialogues and way of speaking	...	5
8. Songs and music	...	5
9. Title of a picture	...	3
	Total	100

SYSTEM TWO:

1. Theme, story, dialogues and songs	...	25
2. Direction	...	20
3. Technical values (Photography, recording, editing, art direction etc.)	...	20
4. Acting	...	15
5. Music direction	...	10
6. General impression	...	10
	Total	100

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri



(Fig. No. 4)

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

BIBLIOGRAPHY

1. Film and its technique: by R. Spottiswood.
2. Grammar of Film: by R. Spottiswood.
3. Grierson on Documentary: by Forsyth Hardy.
4. Documentary: by Paul Rotha
5. Film and the Director: by Livingston.
6. Technique of Film Editing: by K. Reisz.
7. Film technique and film acting: by V. I. Pudovkin.
8. From script to screen: by Woodhouse.
9. Principles of Cinematography: by Wheeler.
10. Colour Cinematography: by Adrian Cornwell Clyne.
11. A Guide to color photography: by Faunstone.
12. Elements of colour in professional motion picture: by SMPTE.
13. Colour—how to see and use it: by Fred Bond.
14. Motion pictures: by A. R. Fulton.
15. Comedy Films: by John Montgomery.
16. Film Form: by Eisenstein.
17. Film Sense: by Eisenstein.
18. S. M. Eisenstein: by Marie Seaton .
19. 16mm. Sound Manual: by Offenhauser.
20. Kodachrome and Ektachrome from all angles: by F. Bond.
21. Photographic Optics: by Arthur Cox.
22. Painting with light: by John Alton.
23. How to series Pub.: by Focal Press.
24. Film: by Roger Manvell.
25. Technique of film animation: by Hallas & Manvell.
26. Design in motion: by Hallas & Manvell.
27. Making a Film: by L. Anderson.
28. Cinema today: by D. A. Spencer.
29. New Screen techniques: by M. Quigley.
30. Cinema as a graphic art: by V. Nilseen.
31. Technique of Screenplay writing: by Eugene Vale.
32. Composing for the films: by E. Hans.
33. Elements of sound recording: by Frayne & Wolfe.
34. Theory and technique of playwriting and screenwriting: by L. H. Lawson.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

04456

35. Motion picture directing: by P. Milner.
36. Designing for Films: by E. Carrick.
37. The Use of the Film: by B. Wright.
38. Form Calligeri to Hitler.
39. Film as Art: by R. Arnheim.
40. Theory of Film: by B. Blazes.
41. Theory of Film: by Kracauer.
42. Art of the Film: by Lindgren.
43. Anatomy of the Film: by H. M. Wollenburg.
44. Reflections on the Cinema: by R. Clair.
45. Economic aspects of film industry in India: by R. D. Jain.
46. Planning for film studies: by Jung.
47. A tree is a tree: by K. Victor.
48. Film music: by K. London .
49. Ideas on Film: by C. Starr.
50. Film in education: by Buchanan.
51. Sensitometry: by Label and Dubois.
52. An introduction to the science of photography: by K. Chamberlain.
53. Exposure: by Berg.
54. Handbook of basic motion picture technique: by Brodbeck.
55. Camera lenses: by A. Lockett.
56. Liveliest art: by A. Knight.
57. Special effects in Cinematography: by H. A. V. Bulleid.
58. Alexander Korda: by P. Tabori.
59. The world of Robert Flehearty: by R. Griffith.
60. 3-D Kinematography: by A. C. Clyne .
61. American Cinematographer's Manual.
62. Introduction to the Art of the Movies: by Lewis Jacobs.
63. Lessons with Eisenstein: by V. Nizney.
64. Filming with 16 mm: by D. Devies.
65. Pictorial photography in colour: by W. J. Pilkington.
66. Kodak data book in four Volumes: by Kodak.
67. Kodak colour handbook: by Kodak.
68. Agee on film review and comments.
69. Mr. Laurel and Mr. Hardy: by J. Molabe Laurel.
70. Indian Cinematograph Year Book.

विद्याधर स्मृति संग्रह
R 710,SHI-C
04456
STOCK VERIFY 2020 G.K.V. Library

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar